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DOMESTIC ENGINEERING

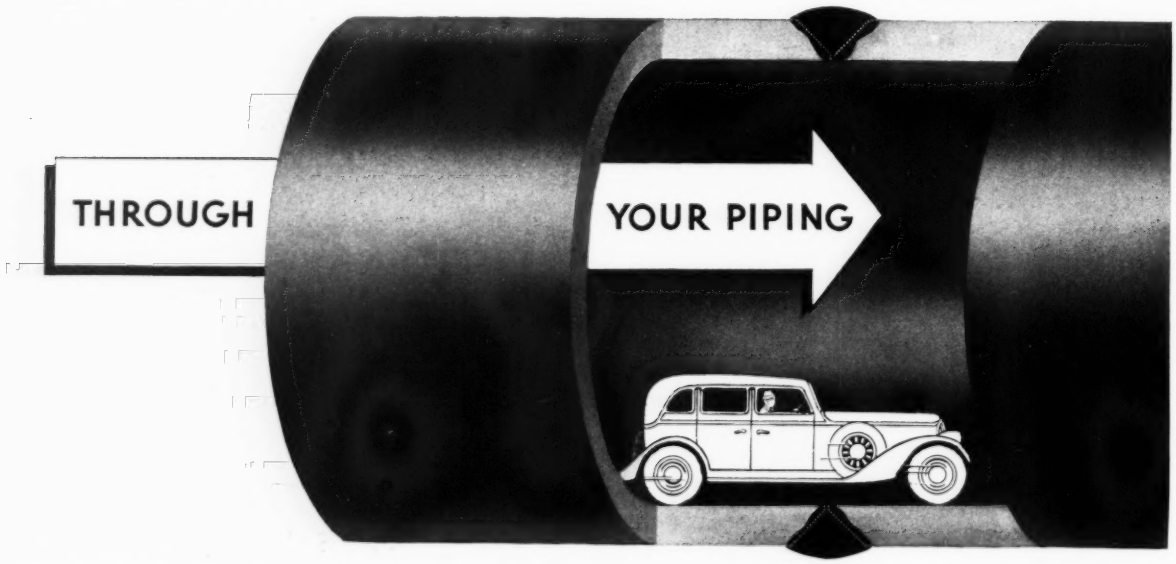
PLUMBING & HEATING CONTRACTING AND MERCHANDISING

APRIL 30, 1932

Where Service Counts—In a Hospital

AUTOMATIC HEAT
PAGE 63

If you had to drive a Car



you would *demand* WELDED JOINTS

IN piping with smooth, one-piece, welded joints, fluids and gases speed along under normal power, like a car over paved highways. Added pressure, to overcome the resistance and turbulence that less efficient types of joint produce, is unnecessary.

But this is not the only economy that oxy-acetylene welding offers. It also cuts insulation, erection, and maintenance expense—eliminates special fittings and calking—reduces weight and adds strength.

The many advantages of oxwelded piping are explained in the book, "Oxwelded Construction for Modern Piping Services," which includes illustrated descriptions of welded overland, power, steam, refrigeration, and residence piping. Presenting the salient facts concerning the welding of steel and wrought iron piping, "Oxwelded Construction for Modern Piping Services" contains numerous money-saving suggestions in a form convenient for quick reference. Send for a copy today. You will be under no obligation.

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Unit of Union Carbide and Carbon Corporation

126 Producing Plants UCC 627 Warehouse Stocks

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LINDE OXYGEN · PREST-O-LITE ACETYLENE · OXWELD APPARATUS AND SUPPLIES · UNION CARBIDE

You make a profit in dollars and cents . . . Your customer makes a profit in economical operation when you install———————

VOGEL NUMBER TEN *or* TEN-A CLOSETS

BECAUSE of the simplicity of construction of Vogel Closets there is nothing to get out of order. We proved this in the Endurance Test (still operating), in which a Vogel Closet has flushed continuously more than 400,000 times with only one washer renewed.

Vogel Closets save water every time they flush, and, in schools, factories and institutions this is a mighty important factor.

VOGEL NUMBER TEN-A Seat Action Closet Combination, with concealed tank. VOGEL NUMBER TEN has exposed tank. Either can be furnished with syphon-action or syphon-jet bowl.

We have always seen to it that there is a good profit for plumbers in Vogel products. We sell only through the jobber and plumber and naturally want the plumber to make a real profit on each installation of Vogel Closets or hydrants.

●

JOSEPH A. VOGEL CO.
Wilmington, Delaware
St. Louis, Missouri

●

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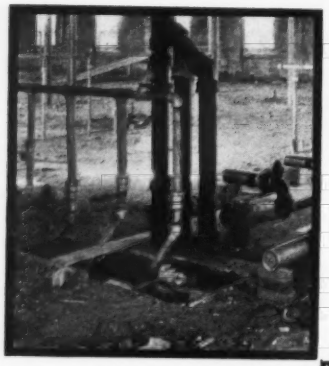

DOMESTIC ENGINEERING

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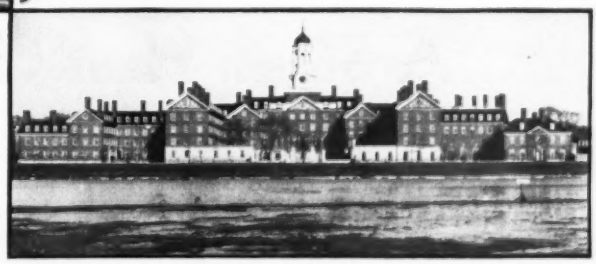
BYERS PIPE BUILDS PRESTIGE for Contractors

Middlesex County Sanatorium in Waltham, Massachusetts. Byers Pipe used in heating and plumbing services.

Plant of W. F. Schrafft and Sons Corporation, fine candy manufacturers, in Boston (Charlestown District), Massachusetts. 260 tons of Byers Genuine Wrought Iron Pipe are used in the heating, plumbing, power and process lines.

. . . and these fine Buildings *prove* it



Dunster House, a new housing unit at Harvard University in Cambridge, Massachusetts. Byers Pipe used in heating and plumbing services.

DUNSTER HOUSE, Middlesex County Sanatorium and the new W. F. Schrafft and Sons Corporation plant, three of the finest buildings in New England, typify the big jobs — the important jobs — in which Byers Genuine Wrought Iron Pipe is used.

In projects like these, which are ever in the public eye, Byers Pipe is used extensively for the great economies offered by its proved corrosion-resistance qualities. These big jobs show the growing trend to Byers — which is reflected in added prestige for plumbing and heating contractors handling the installations.

For 68 years the A. M. Byers Company has led in the production of the finest genuine wrought iron. Today it is better than ever before. Each length of Byers Pipe is marked with the "Spiral Stripe" and the name BYERS rolled into the metal for your lasting protection.

Buy from Byers Jobbers — good stocks — quick deliveries — dependable service.

Send for our new Bending Pipe Bulletin, which describes the only genuine wrought iron bending pipe. Another service bulletin, "Pipe Threading," will also be sent free upon request. A. M. Byers Company, Pittsburgh, Pa. Established, 1864.

BYERS GENUINE WROUGHT IRON PRODUCTS

PIPE • CASING • COUPLINGS • NIPPLES • WELDING ELBOWS • SPECIAL BENDING PIPE
BAR IRON • TUBING • PLATES • SHEETS • BILLETS

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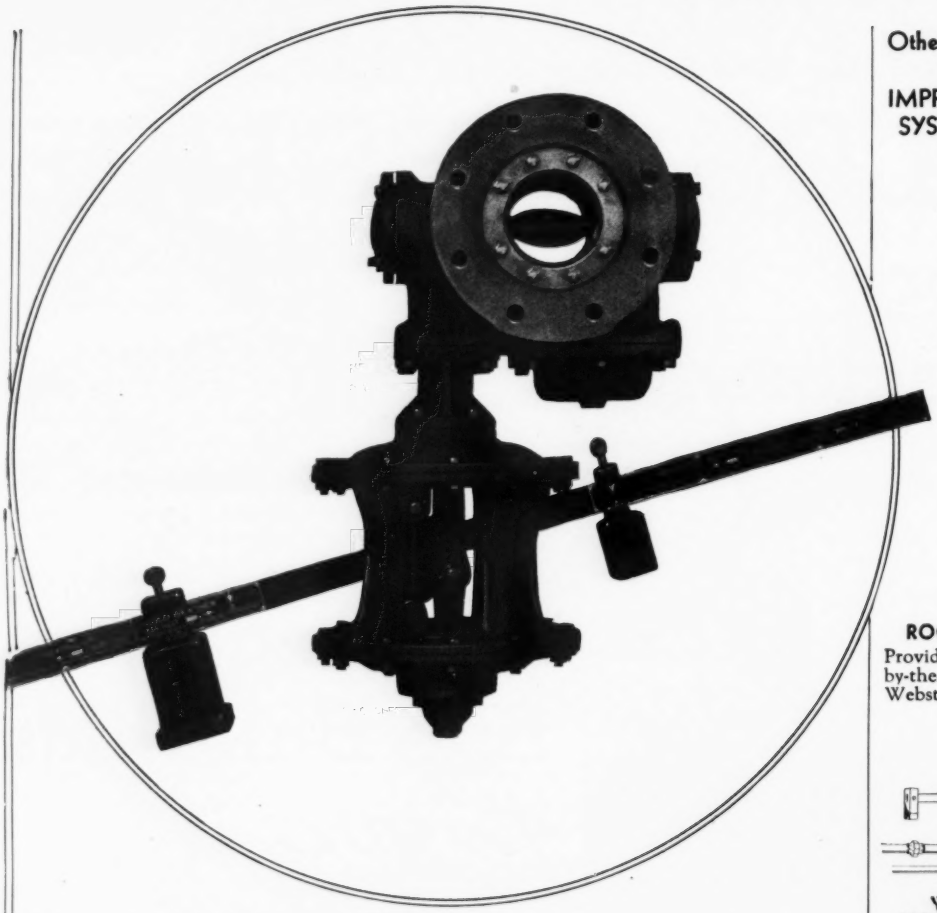


A Steam Heat Control Anybody Can Understand

The new Webster HYLO Variator is the simplest steam heat control you have ever seen. Look it over . . . A child can adjust the two sliding weights for *Cold Weather, Moderate Weather; Mild Weather* or *Quick Heating Up.* The 'Hylo' does the rest. Saves steam, stops complaints and promotes comfort in either new or existing systems . . . Write us for complete data on this new Webster Control.

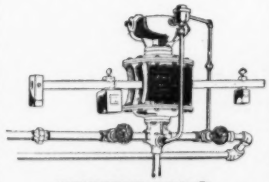
IMPROVED Webster Systems of Steam Heating

WARREN WEBSTER & CO., Camden, New Jersey
Established 1888

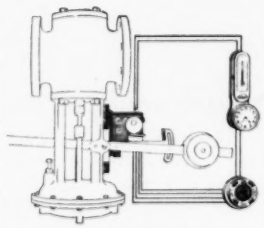
a C—8

Other Webster Controls for use with IMPROVED WEBSTER SYSTEMS of STEAM HEATING

ROOF THERMOSTAT
Provides the true "Control-by-the-Weather" feature of Webster Moderator Control.



WEBSTER HYLO VACUUM VARIATOR
Another simple central control. Used with Improved Webster Vacuum Systems.



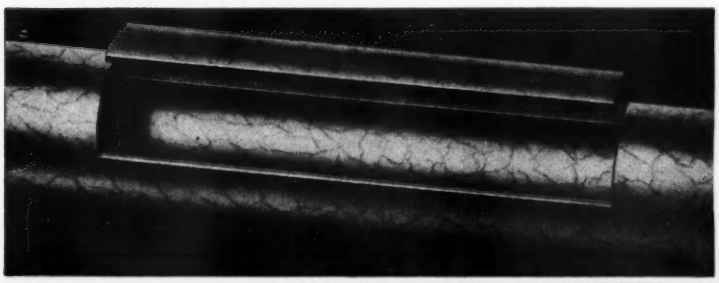
ZONE CONTROL
Supplementary Zone Control may be included with any type of Webster Central Control—Hylo or Moderator.

VARIATOR
Provides Manual Adjustment of steam from 50% to 200% of normal in Moderator Control Systems.

81 YEARS OF IRON AND STEEL IS ASSURANCE OF J&L PIPE QUALITY

In the 81 years of its history, Jones & Laughlin has developed from a small beginning to an outstanding position in the industrial life of the nation. This change has come through growth alone, unaffected by combinations or consolidations. The business today moves forward under the direction of the third and fourth generations of the families who established it. These facts are of significance to the purchaser of J & L pipe—for they bear evidence to a quality of product, an efficiency of service, and an uprightness in business dealing without which such long-continued existence, and such continuous growth, would have been impossible.

J&L PIPE



GALVANIZED PIPE

J & L pipe is galvanized by a special process. The pickling and cleaning of the pipe are done with scrupulous care. The pipes are drawn from the pot, and blown with steam while the spelter is still hot. This removes excess spelter and sal ammoniac flux; it prevents clogging; and it promotes a better distribution of spelter on the pipe. Inspections are thorough and complete; at regular intervals samples are tested. Some are bent, to check the coating strength; others are split open, to check the coating distribution. Thus through advanced practice, and rigorous inspection, the highest quality is continuously maintained.

OUTSTANDING FEATURES OF J & L STEEL PIPE

1—Uniform Quality Steel
2—Free from Excess Scale
3—Accurate Mill Threads
4—Free Cutting—Easy to Thread
5—Sound Couplings
6—Thoroughly Coated
7—Rigidly Inspected
8—Galvanized Pipe Uniformly Coated—No Clogging with Coating

J&L STEEL

JONES & LAUGHLIN STEEL CORPORATION
AMERICAN IRON AND STEEL WORKS
JONES & LAUGHLIN BUILDING, PITTSBURGH, PENNSYLVANIA
Sales Offices: Boston Buffalo Chicago Cincinnati Cleveland Dallas Denver Detroit Erie Los Angeles Milwaukee Minneapolis New York Philadelphia Pittsburgh St. Louis San Francisco
Warehouses: CHICAGO CINCINNATI DETROIT KOMPASS NEW ORLEANS PITTSBURGH

J & L JUNIOR BEAMS

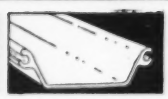
J & L STEEL PIPE

J & L LIGHT CHANNELS

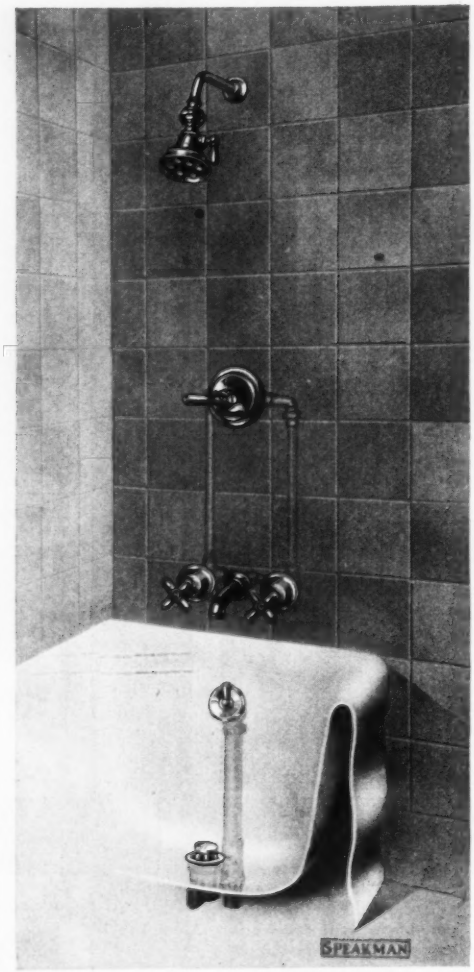
J & L NAILS and STAPLES BRIGHT and GALVANIZED

J & L CONCRETE BARS

J & L STRUCTURAL STEEL


J & L STEEL PILING

Today the Shower That Doesn't Have a Speakman Anystream Self-Cleaning Head is as Out of Date as →



K-4039-M—Speakman Mixometer Shower and Tub Combination. ½" size. All metal handles and escutcheons. Has Speakman Anystream Self-Cleaning Shower Head and Act-Easy Pop-Up Waste. Valves connected by brass pipe and tested.

K-3395—Speakman Anystream Self-Cleaning Shower Head (Pat. Jan. 2, 1923 and Nov. 3, 1931).

THE next time you are selling a shower, remember this and make a feature of the Anystream Self-Cleaning Head. Point out to your customers that with this modern head they can change to a needle, normal or flood shower by simply turning the lever handle.

Here is something that every member of the family will appreciate. They will also appreciate the fact that this head *can never stop up!*

And remember also, that when you include an Anystream Self-Cleaning Head in the sale of every shower, you are boosting your own profit while you are giving your customers the last word in shower convenience.

Literature on the Anystream Self-Cleaning Head, imprinted with your name and address, will be mailed promptly.

SPEAKMAN COMPANY
Wilmington, Delaware

SPEAKMAN SHOWERS *and* FIXTURES

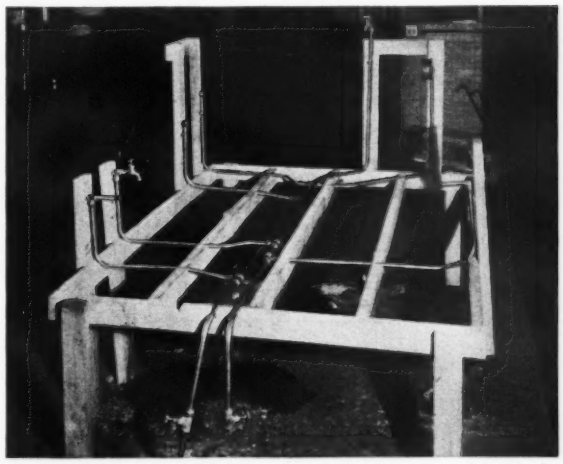
5 gruelling tests *prove Stamina of PR PIPE*

(PAUL REVERE PIPE)

Actual bathroom set-up given 3000 per min. vibration test, 3400 lb. hot water test and other tests far beyond demands of actual service.

If you would like to know what P R Pipe will actually stand, read below about some extremely severe tests at Columbia University, New York.

P R Pipe and compression fittings, as ordered from distributors' stock without special selection, were used. A typical bathroom piping system was set up on a frame to duplicate actual conditions. But the tests put this system under strains and stresses never met with in actual service . . . as the following tabulation shows:



Bathroom Piping set-up of P R Pipe and compression fittings as tested at Columbia University. P R Pipe is 99.9% pure copper free from flaws. It is rustproof, will resist freezing and has effective thickness of S. P. S. (standard pipe size). Joined with compression or solder fittings.

Cold Water Test	Pressure introduced at 100 lbs. Stepped up to 150 lbs. Valves closed	No leaks
Hot Water Test	City pressure raised to 250 lbs. Held. Then pressure was shot up . . . to 1430 lbs. . . . . 2400, 3000, 3400!	No leak in pipe
Torsion Tests (for tightness of joints against slippage)	(1) Pipe completely turned 3 times (2) a 2-ft. length of ¾" pipe, tee in center, twisted in machine	(1) Fitting held (2) at 810 inch-lbs. pipe twisted shut but fitting held
Vibration Test	System filled with water at 125 lbs. Vibration from an air compressor on system	Vibrations at 3000 impulses per min. for 30 min. No leaks, no loss of pressure
Deflection Test	A 2-ft. length of ¾" pipe, with tee in center and couplings at end. Full of water at 100 lbs.	Pipe bent in machine to deflection of 4.83 in. in 25⅜ in. of length. No leaks. Pressure raised to 2370 lbs. before leaking

For further information address Revere Copper and Brass Incorporated, 230 Park Ave., N. Y. C.

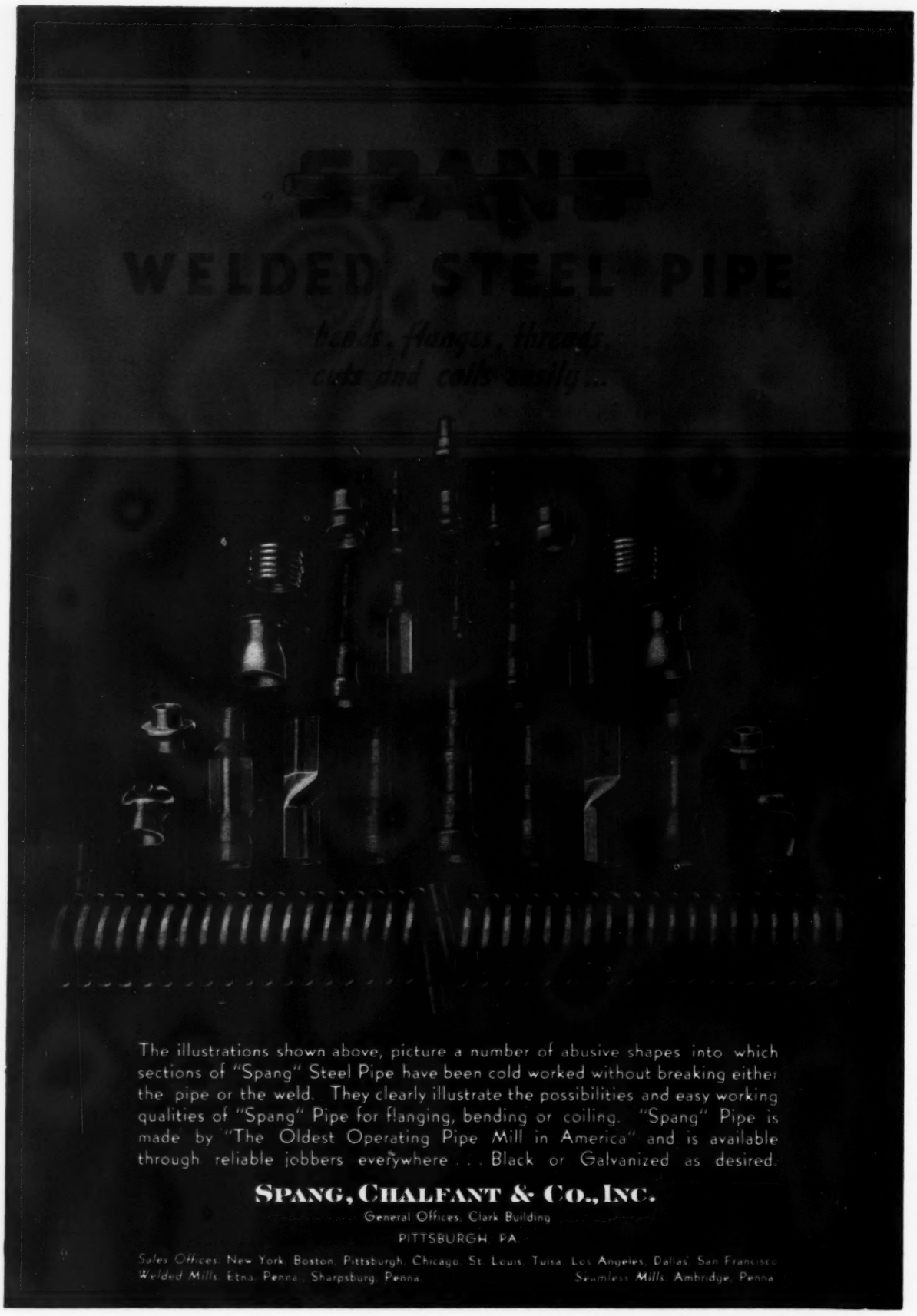
Revere Copper *and* Brass

INCORPORATED

P R PIPE

Baltimore *Division, Baltimore, Md.* Michigan *Division, Detroit, Mich.* Higgins *Division, Detroit, Mich.*
Dallas *Division, Chicago, Ill.* Taunton-New Bedford *Division, Taunton, Mass.* Rome *Division, Rome, N. Y.*

EXECUTIVE OFFICES: NEW YORK CITY
GENERAL OFFICES: ROME, N. Y.



The illustrations shown above, picture a number of abusive shapes into which sections of "Spang" Steel Pipe have been cold worked without breaking either the pipe or the weld. They clearly illustrate the possibilities and easy working qualities of "Spang" Pipe for flanging, bending or coiling. "Spang" Pipe is made by "The Oldest Operating Pipe Mill in America" and is available through reliable jobbers everywhere . . . Black or Galvanized as desired.

SPANG, CHALFANT & CO., INC.

General Offices, Clark Building

PITTSBURGH, PA.

Sales Offices: New York, Boston, Pittsburgh, Chicago, St. Louis, Tulsa, Los Angeles, Dallas, San Francisco

Welded Mills: Etna, Penna., Sharpsburg, Penna. *Seamless Mills:* Ambridge, Penna.

BETWEEN OURSELVES

DOMESTIC ENGINEERING, APRIL 30, 1932

A National Experiment

IN many cities, the prospective purchaser of plumbing and heating products is being shown the prices of those items, plainly marked on prominently displayed tags. This marks the beginning of a sales test which already has taken on national proportions.

Low Prices Are Tagged

THE industry has been aroused in the past few weeks by the aggressive activity with which so many contractor-dealers have been telling their customers and prospects of the cuts in labor and materials. The business which these dealers have taken has been encouraging. And now these low prices are marked on tags in many show rooms.

Trying Out New Plans

FOR the past year, the industry has heard more of new methods of selling. The effort to promote a sales leader, that is, a low-priced combination which would attract those customers who have been seeing similarly priced items in direct-to-you advertising, is being tried in many localities. From this newer emphasis on prices, it was an easy step to advertising in channels other than the show room. The article which immediately follows this page tells of some of these new plans which are being tested in what has become a nation-wide experiment.

Down On the Farm

HERE'S an account of the methods of a contractor in a town of 5,000 people. He has studied closely the peculiarities of the farm market, and his studies not only proved its profit making possibilities but led to his own success in serving that market. He takes advantage of the Saturday in town to make a show room help his sales. And he finds that personal calls are the backbone of farm selling. Also you will be interested to find his comment that the husband is the buying factor on the farm, and he has a reason for this deduction—the farmer and his wife operate a farm more like a business enterprise. With the first sale, usually a water system or a central heating plant, leading to a succession of following sales, this article will help everyone who can serve this big market.

And in the Suburbs

GOVERNMENT reports show a rapid increase in the use of bottled gas. And I recall, in an article we published a few months ago, that we had run into a successful contractor who was giving up a $250,000 business to concentrate on the sale of bottled gas and the equipment which naturally goes with it. His reason was a good one, he expected to do more business in that line than by carrying on a general business as a contractor. In this issue, you are fortunate in meeting two heating men who tell you briefly but clearly just what their experience has been in opening up the market for heating equipment in that territory beyond the city gas mains.

Selling Unit Heaters

THIS particular contractor had made an especial study of unit heaters and found an automatic heat problem where this knowledge came in useful, in fact so useful that he took the order from competitors who failed to see the opportunity.

Building Business

RIGHT now, the plumbing and heating industry is working harder, especially the contractors who are leading the way in going after business. DOMESTIC ENGINEERING in its recent issues has been giving you a timely service in reporting the active efforts of these contractors. Every issue, just like this one, is particularly planned to serve our readers with useful and usable engineering and sales information on which a bigger business can be built.

Your Editor

Price Tagging as Sales Help

STANDARD---CRANE---KOHLER
NATIONALLY KNOWN GOODS
DELIVERED ATLANTA AND VICINITY
$24.00
COMPLETE AS SHOWN
INSECTS LOVE OLD SINKS
Insects like to nest in a damp place in a house. An old-fashioned kitchen sink is a paradise for them. Why put up with this menace to health? A modern, sanitary sink will eliminate them for all time, and guard against disease and germs, besides, it will bring mother out of the kitchen quicker.
See one of these sinks on display in the following stores.
DECATUR PLBG. & HTG. CO.
141 Atlanta Ave., Decatur, Ga.
DE. 0093
FLOURNOY PLBG. CO.
133 Marietta St.
JA. 2936
NORTHSIDE PLBG. CO.
118 Tenth St., N. E.
VE. 1811
SECKINGER BROS.
180 Forsyth St., S. W.
WA. 1033
M. W. WISE CO.
215 Glenn Bldg.
WA. 6173
BUCKHEAD PLBG. & HTG. COMPANY
3051 Peachtree Road
CH. 3586

A NATION-WIDE test of a new method of selling plumbing and heating goods is now being carried on. "Prices plainly marked," a familiar phrase in many other lines, is the basis of this new sales program. And the prices themselves are not only being marked plainly but have been marked down.

In every section, this program is being subjected to the buyers' test by some plumbing dealers, with the co-operation of interested wholesalers and manufacturers. And, as in the case of the Central Supply Association, a group of wholesalers and manufacturers are urging more general price tagging. The first reports of the program are encouraging from the standpoint of increased business.

To those not familiar with the plumbing and heating business, a movement to show customers at what price the products they are inspecting can be bought for, would seem a tardy recognition of an accepted business principle. But the fact that the dealer in this case is usually the installer and as such assembles and fabricates the materials for each job rather than wrapping them up and passing them over the counter, has complicated and delayed the use of the price tag. The changing business conditions of the past year and more have brought about the decision to make this test.

Today's experiment is being made in several forms. One method is the use of price tags on the plumbing and heating products in the dealer's display room and in some cities, in wholesalers' room also. In some localities, this has been followed by an active sales drive by the dealers in which the prices are advertised to the public in direct mail pieces, in sales letters and in local newspaper advertising.

Another experiment is the use of a low priced item or combination of items as a sales leader. This plan is

The new test of price tagging is being made not only in show rooms as in the Houston, Tex., view below, but through dealer advertising. The sample advertisement at the left was financed by a group of Atlanta, Ga., dealers

Is Tried in Nation-Wide Test

being quite generally tried out. Wholesalers in some cases are displaying these low retail prices to customers.

President P. W. Donoghue of the National Association of Master Plumbers on December 21, 1931, called upon manufacturers, wholesalers and master plumbers to co-operate in reducing their profits on a cheaper group of items, suggesting a "five-foot bathtub on legs, a 21-inch lavatory, a wash-down closet outfit, a 42-inch drain board sink and a small size tank gas water heater." In the last issue of DOMESTIC ENGINEERING, Mr. Donoghue met misunderstandings which had grown up under this suggestion and made definitely clear his position on direct selling by those who are not retailers.

A program worked out by the Central Supply Association and explained by its president, W. J. Spillane, and its secretary, Robert Macfee, before audiences in Wisconsin, Illinois, Michigan, Ohio, Tennessee, Texas, Louisiana and Georgia, calls for price tagging in wholesale and retail show rooms with installation made by qualified dealers to make sure that the equipment performs properly.

The full program asks for manufacturers to trade mark their goods.

The illustrations with this report show methods used to get these plans for "prices plainly marked" over to the buyers. The movement is still too new to tell its effects. It is an experiment which every one in the industry will follow with intense interest.

Minneapolis, Minn., dealers ran the advertisement at the right. The truck, shown at top, illustrates how a Texas dealer is following the trade marking plan. Below is another show room with "prices plainly marked"

PLUMBING AND HEATING PRICES HAVE HIT THE BOTTOM

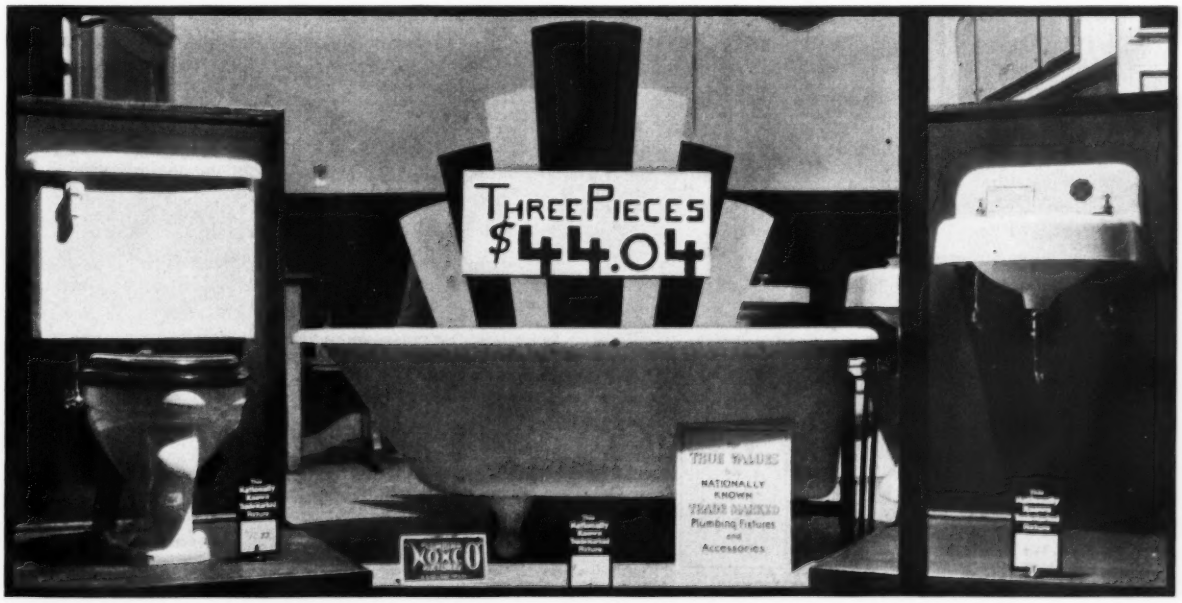
43% Below 1920 and 25% Less Than a Year Ago

These prices won't last! Plan your improvements now!

Safeguard your investment by employing a contractor, who will give you price, plus quality and responsibility.

Any of the following plumbing and heating firms will gladly assist you without obligation:

O. P. Bahneman & Co., 1318 Marquette Ave. ..... Ge. 1614
Belden Porter Co., 65 N. 17th St. ..... At. 1515
Bjorkman Bros., 712 S. 10th St. ..... Ge. 7520
Conner's Plbg. & Htg. Co., 827 2d Av. S. Ma. 6323
Elsen & Peters, 158 13th Ave. N.E. ..... Di. 4062
Hineline & Co., 625 3rd Ave. S. ..... Ge. 8327
Hughes Htg. & Plbg. Co., 1514 E. Franklin Ave. ..... Ma. 6006
Huston & Co., 612 3rd Ave. S. ..... Ge. 8356
L. H. Johnson Co., 918 LaSalle Ave. ..... Ge. 8063
O. F. Kohl & Co., 915 Marquette Ave. ... Ge. 9116
Lamb Htg. & Plbg. Co., 244 2nd Ave. S. Ge. 7189
Minneapolis Plbg. Co., 1120 Nicollet Ave. Ge. 4316
Otto T. Nelson, 2137 Lowry Ave. N. .... Hy. 7375
H. C. Ridler Co., 310 W. 33rd St. ..... Co. 0276
South Side Plbg. Co., 1400 Washington Ave. S. ..... Ge. 6321
F. C. Stiller & Co., 129 S. 10th St. ... Ge. 1966
Twin City Plbg. & Htg. Co., 1519 E. Lake St. ..... Du. 7313



This plumbing organization is in a town of only 5,000 inhabitants.

Farm Water Systems Are Key to Profitable Sales

By G. T. CAIRNS

GEORGE GREEN, an enterprising plumbing and heating contractor of LeRoy, N. Y., a village of 5,000 population, is enthusiastic about the farm market because one sale leads to so many more.

His big specialty for farms is water systems, a surprising number of farms having no such equipment. But Mr. Green has not stopped in the past after he has sold and installed a water system. He usually finds this an excellent entree for the sale of plumbing fixtures and appliances.

When the water system has been installed, making running water available in the house, the very next step is to sell the family on a water closet, bathtub and sink for the bathroom. This usually does not require much effort, as farmers are quick to realize and appreciate the convenience and sanitary advantages in these.

Next follows an attractive sink for the kitchen and probably washtub installations in the cellar. After that the family is a prospect for plumbing fixtures and appliances of all sorts, depending entirely on their prosperity which will vary from year to year, according to the state of the crops.

A slightly different technique is required in selling the farmer than is used in village or city sales. Mr. Green knows that the farmer's spending is regulated entirely by his crops. If he has a good year he is in a receptive mood for a water system, or if that has already been installed, for other fixtures and appliances. But if crops have been poor, more work is required.

Not only does the state of crops govern orders, but it also governs the method of payment, Mr. Green said. For example, the average town or city customer will agree to pay in cash, within 30 or 60 days, or by the week. The farmer, however, will usually pay in cash when the job is completed or else he will agree to pay "when the wheat is harvested" or "when we sell our potatoes." This may be one month or several months later, but, as Mr. Green pointed out, there is one consoling factor about farm trade—the farmer always pays. If he doesn't, it is because of circumstances beyond his control.

PICKING THE RIGHT PROSPECTS

There are several methods which Mr. Green has used to line up prospects for farm water systems. The LeRoy business men's association publishes a rural directory showing the location and owners of farms in the vicinity. There is also available at the postoffice a rural mailing list. However, Mr. Green favors a system which is perhaps somewhat more effective than either of the above. This consists in following up heating installations and, being a heating contractor, he often can do this from his own office records.

"It is really not practicable," he explained, "to install a water system in a farmhouse which is not equipped with a heating plant. In this climate, the system would be bound to freeze up in winter and the pipes burst if

some system of heating the entire house is not used. Obviously the individual heating stoves used in most farm homes will not answer the purpose. A central heating plant to distribute the heat evenly throughout the building is necessary. For that reason we do not bother with homes not so equipped, as we feel the trouble such families would experience during the winter with their water system would do us more harm than the profit we might make on the job would justify.

"But in farm homes which are equipped with a central heating plant, either warm air or any other system, we make an effort to sell water systems and, having succeeded in that, we find that the sale of other plumbing fixtures and appliances is only a matter of time."

There is an excellent weekly newspaper in LeRoy in which Mr. Green advertises regularly, and he also solicits business aggressively by direct mail, but he has found that in a town the size of LeRoy there is another form of advertising which is quite as effective—and sometimes more so. This is the word-of-mouth type.

Scarcely a day passes but that in the course of conversation on the main street, Mr. Green picks up a lead to a possible customer. On Saturdays, especially, this is true, for then most of the farmers in the vicinity come into town with their wives to shop. They can be found gathered in the postoffice or in the various shops. On these trips to town quite a few take occasion to visit Mr. Green's attractive shop and discuss their plumbing and heating problems with him. On such occasions, he can show the farmers various attractive fixtures and appliances which would be a convenience and asset in their homes if they have installed a water system. And not infrequently a glimpse at first hand, such as is afforded in the store, clinches the sale of a water system, about which a farmer may have been debating for some time.

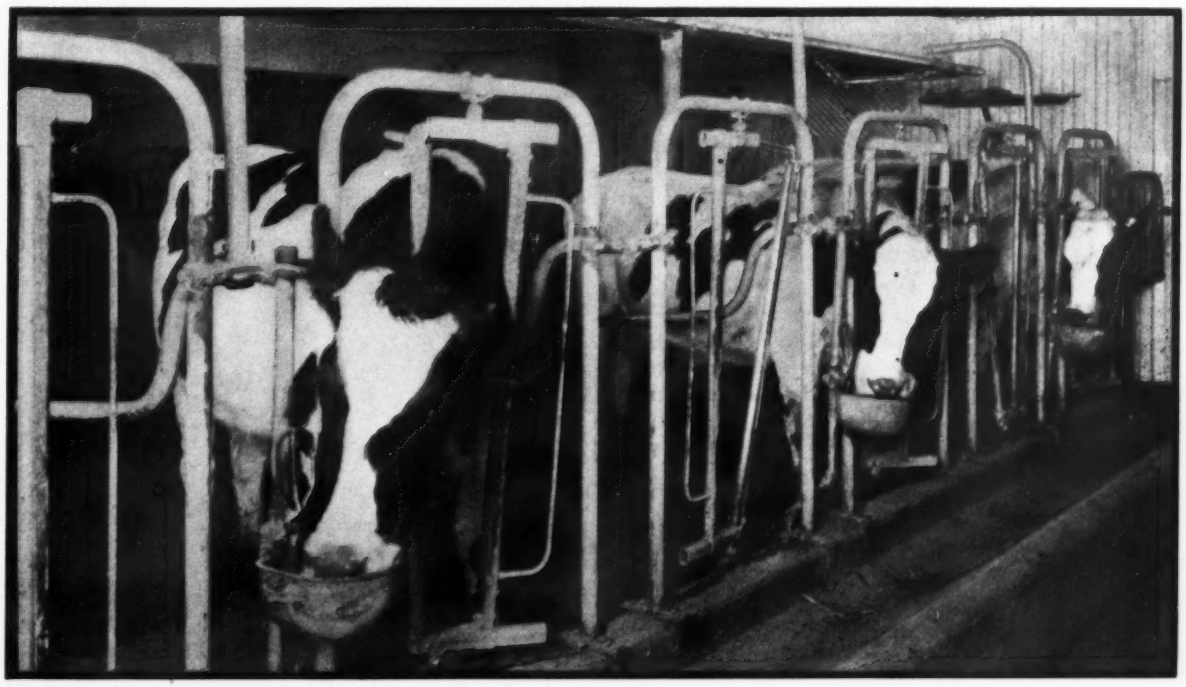
Since he installed his first farm water system some years ago, Mr. Green has never been without prospects for this farm convenience. This is because invariably a farm customer is the best source of leads for other customers. Almost every farmer has a pretty good line on his neighbors, even though their farms may be several miles away. He knows how many cattle they have, what crops they raise, what farm equipment they own and whether or not they have a heating plant in their home and a water system. When he installed his first water system, Mr. Green obtained enough leads from that particular farmer to keep him busy for some time and, as these developed into customers, he obtained still more leads from the new prospects for water systems.

WHO MAKES DECISIONS ON THE FARM?

Through this system of using one customer to give him a lead on another, Mr. Green has built up a profitable business in water systems. By the same method he obtains accurate information for the sale of heating plants, which, as previously explained, almost invariably lead to the sale of water systems.

In selling water systems, Mr. Green adapts his selling arguments to meet each specific case. It really requires a somewhat different technique than is used to sell plumbing in the town or city, because each farm has its own peculiar problems to meet. The installation must be made with care because, the farms being isolated, they cannot get quick and inexpensive service at frequent intervals.

Not only are the problems connected with the sale of farm water systems different, but the psychology is also different than that used in the city sale. For example, the average city plumber concentrates a good deal of his



"It is easier to sell water systems to a farmer who maintains livestock."

"I follow up all heating installations."

sales activities on the housewife, knowing that she is in the house most of the time and can better appreciate the conveniences which he offers. He also operates on the theory that the average city husband is greatly influenced by his wife with regard to things for the home. Also the plumber is influenced by sales statistics showing that women do most of the buying in the nation.

An entirely different situation is met on the farm, however, according to Mr. Green. Here the man usually makes the decision on plumbing and, while it is good policy to win the support of the wife, she cannot be counted on to influence her husband as strongly as the city woman. This is because the farmer and his wife are really operating a joint business, Mr. Green said, and both realize that their welfare depends more on the condition of their crops and live stock than on the conveniences in their home. Mr. Green has encountered many cases where the farm wife refused to consider a water system or other plumbing conveniences so that money could be used in the purchase of farm machinery.

THE INVESTMENT FEATURE

Mr. Green personally sells the water systems to farmers during the spring and fall, frequently making daily trips to farms in the vicinity of LeRoy. He first calls at the farmhouse, where he usually finds the housewife busily engaged in her morning tasks. After a short talk with her, during which he points out various conveniences which she would enjoy with a water system, he hunts up the farmer.

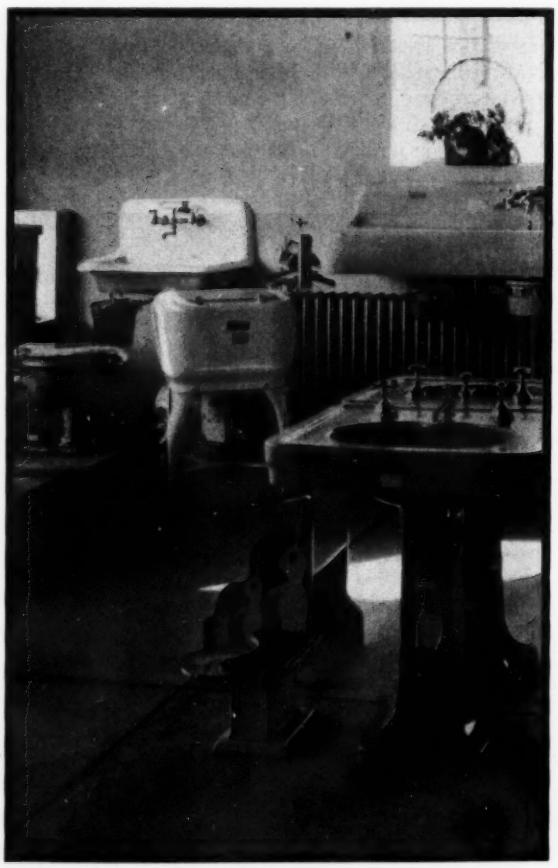
It is considerably easier to sell a water system to a farmer who maintains live stock in the form of cattle, pigs and horses than it is to one who operates just a truck farm. This is because the man with live stock can be sold on the idea that a water system is a business investment, while the other farmer can only be sold on its convenience for the home.

Where there are live stock, the farmer must spend much time morning and night watering the stock, cleaning the barns and performing various other tasks where water is needed. Without a water system he must carry the water from the well or spring on the farm when he performs these tasks. When talking with such a prospect Mr. Green stresses the time which a water system will save him each morning and night when he waters the stock; also the sanitary features which piped water will bring to the barn, assuring better health for his stock and finally the convenience the system will provide not only for the farmer in handling his stock, but for his wife and family in their household tasks.

About the only objections farmers offer are financial and Mr. Green tries to overcome these by offering convenient terms of payment. He usually agrees to accept twenty-five per cent down and the balance at any time within reason which is convenient to the farmer.

Mr. Green finances all these deals himself, seldom charging interest, as he usually counts on the total figure to take care of the deferred payments. Once the farmer has agreed to put in a water system, the next step is to study his particular problem. This will take various forms, but generally will concern only the type of system to be installed, i.e., gasoline or electric, and the placing of the outlets.

The pumping mechanism is invariably installed in the basement of the farmhouse and connected directly with



"A water system opens the way for the sale of plumbing fixtures."

the spring or well from which the water is to be obtained. This usually is located from fifty to five hundred feet away from the house.

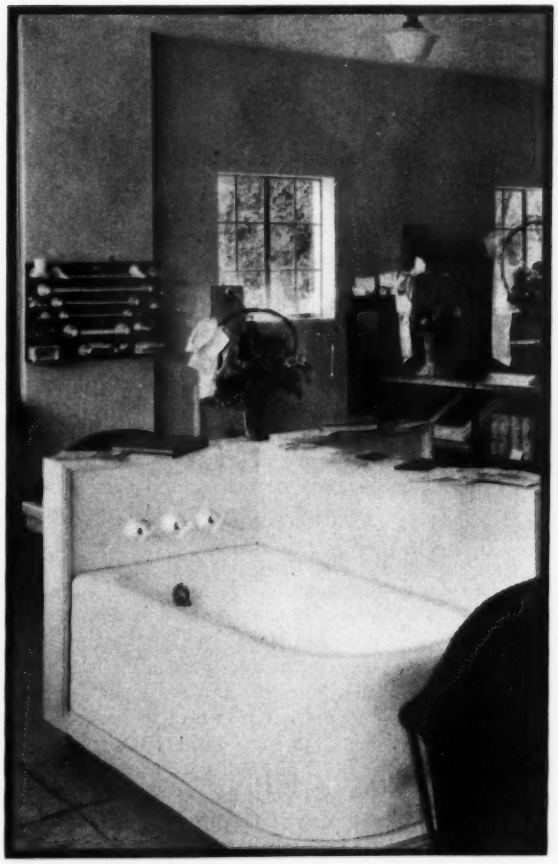
On the average installation, two men are sufficient and they usually take from two to three days to complete the job. All outside pipes are laid far enough below the surface to escape frost. In the average barn, two or three outlets are sufficient, while in the house connections are made with the kitchen, basement for washtubs, and with the bathroom.

The size and problems of water system installations will vary greatly with the size of the farms. On dairy farms, for example, the cost of the installation may run more than $3,000. Mr. Green had one such job, the most difficult and expensive feature of the installation being in the large dairy barn. Here individual trough connections were made for the cows, a high pressure steam boiler and sterilizing equipment installed, with pipes connected to carry the steam used for sterilizing into radiators for heating the barn in winter.

Only about a third of the farms are wired for electricity, but Mr. Green has found that those families which have put in electricity are eager to acquire all the modern plumbing conveniences. He has sold many electric ironers to farm homes equipped for them.

Mr. Green follows up names given him by farmers with direct mail literature. If inquiries are not forthcoming within a week or two he starts out some morning and visits those farms. The memory of the visit to the home of the farmer who has installed the system is still fresh in the minds of the neighboring farmers and their wives. Mr. Green casually brings up the subject of water systems and plumbing conveniences, mentions that cash payments are not necessary, that he is willing to wait until the crops are harvested.

"A personal inspection usually clinches the sale."



"On Saturdays, the farmers come to town and visit my store."

With his car he can visit a dozen or more farms within a radius of twenty-five or fifty miles from LeRoy within a week by just making morning trips. Out of this dozen calls he usually returns with an order for a water system installation. And so he starts a new cycle of prospects on which to work the following week.

Mr. Green depends almost entirely on personal contact to sell his farm water systems, although he does mail out considerable factory literature and advertises every week in the LeRoy newspaper.

PERSONAL CALLS ARE ESSENTIAL

"Farmers," he explained, "are inveterate readers. They have read more about water systems than I could possibly tell them in letters or direct mail literature. I go on the theory that if they are in the market for a system I can clinch the sale by a personal call. If they are not I can mail them letters and literature from now until doomsday without avail.

"I find that by lining up prospects according to information I can gather on them, either from my own office records, or from friends, I make better progress by calling personally than by depending on advertising to stir their interest. I do not mean to say that I don't believe in advertising. On the contrary, I probably do as much or more than any plumber in this vicinity. But in getting the farm trade a personal call is necessary.

While conditions may alter the total number of prospects at any one time, such a method of working on possible sales will uncover those who can afford to buy.

Plumbing Ties Seventy-Four

Where service counts —In a hospital—

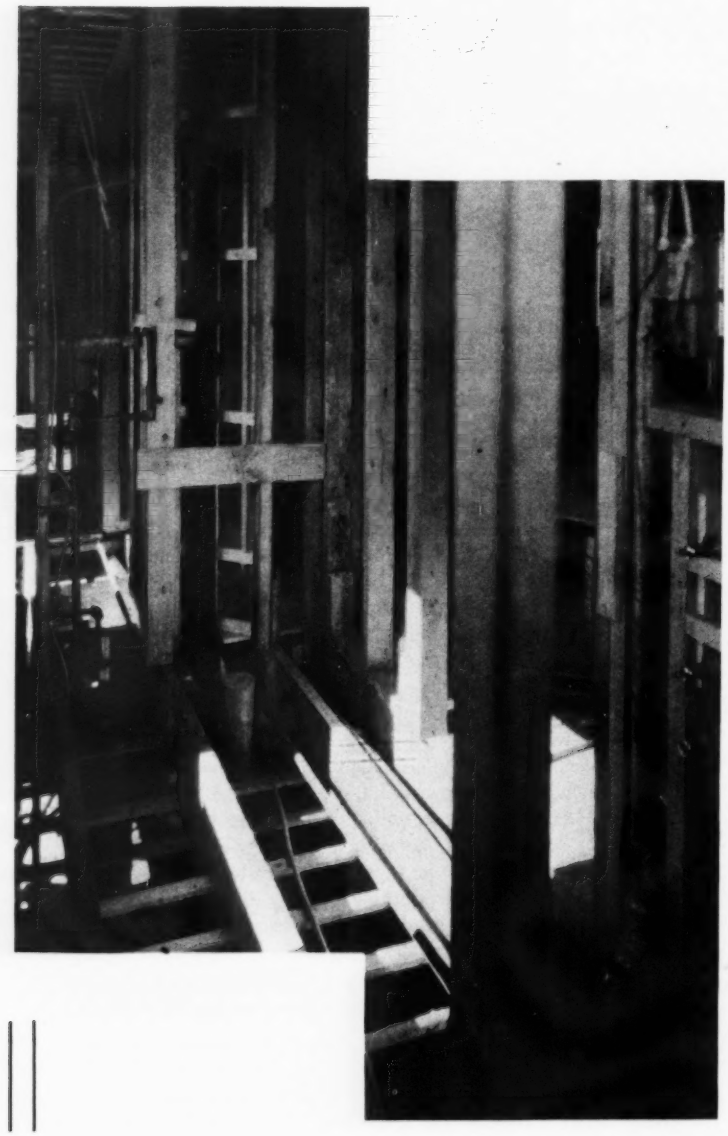


Fig. 1—The feature of particular interest relative to the staff houses is that each apartment has two bathrooms on the second floor. The above view shows this work and while the bathrooms are not actually back-to-back, they use the same stack. At the extreme right of the picture, the bathtub vent is shown rising to the ceiling. It seems as if this could have been handled in such a way as to provide for the stack venting of the baths and lavatories

By R. M. STARBUCK, JR.

Refrigerated drinking water is supplied through both a recirculating system and self-contained units; cleanouts on each water closet bend have been installed; plumbing in the medical staff's houses is simple and compact; the valving connected with the hot and cold water supplies is thorough; a valve is supplied on every branch where it leaves the main line; for the water supply, nine wells were sunk and connected so as to feed into one main supply line; a reservoir to hold between one and two million gallons of water will be constructed—these and other features were covered by Mr. Starbuck in inspecting and describing this hospital project.

CONNECTICUT'S new state hospital for the feeble-minded, at Newtown, Conn., is a striking example of the community plan of building and administering a large public institution.

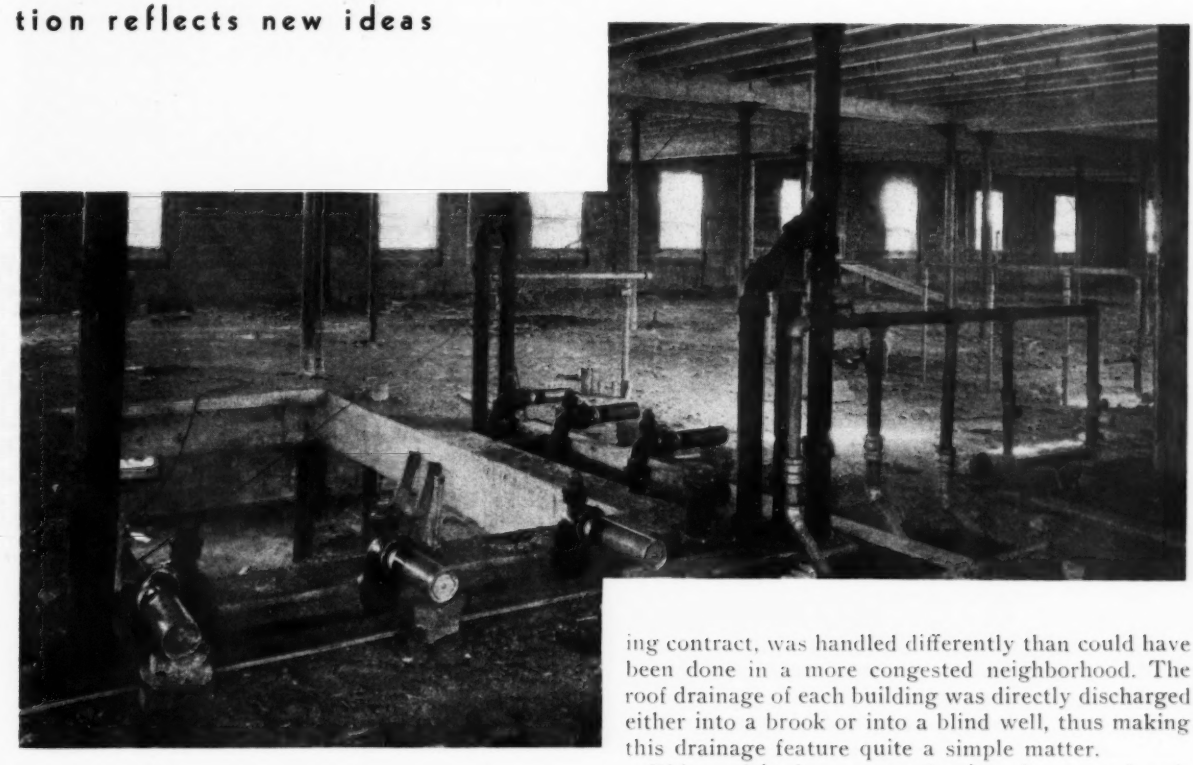
Probably the ordinary plan is to make each separate unit more or less dependent on its own resources, and comparatively independent of any general co-operative plan.

By this we mean that often, and perhaps generally, an individual large unit such as a hospital or a dormitory, would have within itself its own heating plant, its own outfit for generating hot water, its own laundry, and so on. Also, each unit would often expect to have its own kitchens, its own dining rooms, etc.

In the Fairfield state hospital, now in course of construction, an entirely different plan is followed. Heat from one central source is to be supplied to all of the 74 buildings that will comprise the complete institution. Hot water for do-

Hospital Buildings Together

The plumbing installation reflects new ideas



mestic purposes will come from the one source. All laundering will be done in the institution's general laundry. All the meals will be prepared and served in one building devoted to this sole purpose.

Undoubtedly such a plan as this saves a great amount of duplication, and makes for economy in the original installation and in future maintenance.

This particular institution is greatly the gainer from the fact that at the outset, indeed before the first building had been started, the planning for the entire layout had been completed. Often an institution reaches its great size not from original plans, but from the addition of one building after another, as the need has appeared.

The water supply is an interesting feature. On the institution's own grounds an abundant supply of excellent quality water has been located. This has already been made available by the sinking of nine wells, feeding into one main line. Future plans call for the building of a reservoir to hold between 1,000,000 and 2,000,000 gallons of water, the water to be delivered to the various buildings by gravity.

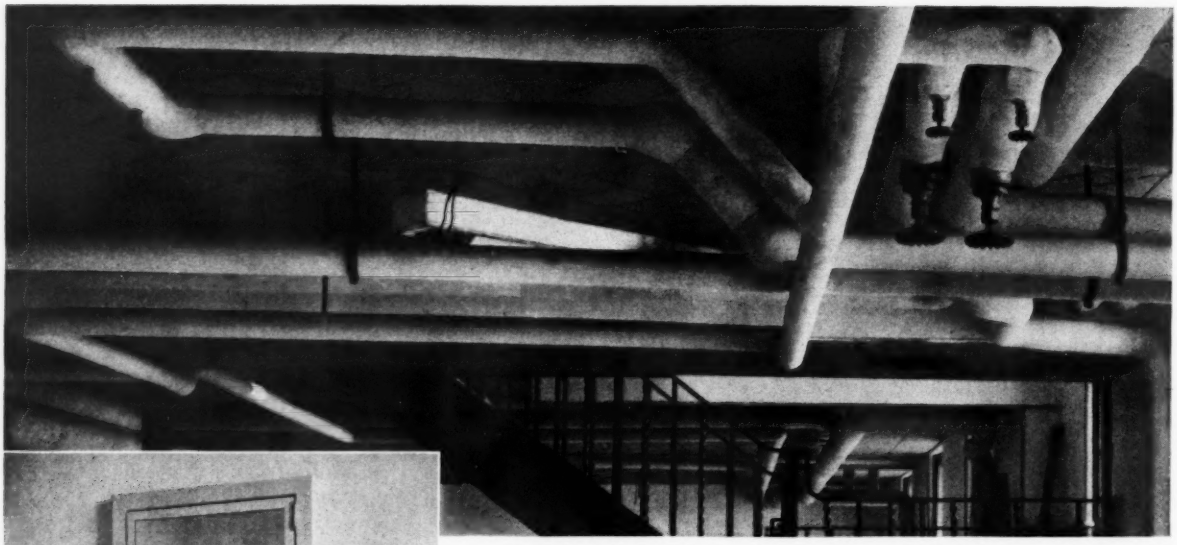
The sewage is handled by Imhoff tanks and after purification by a system of sub-soil irrigation, will discharge into a stream which passes through the grounds.

Storm water drainage, which came into the plumbing contract, was handled differently than could have been done in a more congested neighborhood. The roof drainage of each building was directly discharged either into a brook or into a blind well, thus making this drainage feature quite a simple matter.

This article is concerned with the second unit which includes the general hospital, reception hospital, nurses' home, married employees' home, female employees' home, five staff houses and the staff dining hall. Fig. 5 shows four of the buildings included in the first two units. At the extreme left is seen the building or connecting buildings which contain the extensive dining rooms and the kitchens serving them. The building under construction is the reception hospital, then the nurses' home, and at extreme right the employees' home.

The valving connected with the hot and cold water supplies is thorough, and according to the following requirements: A valve is supplied on every branch, where it leaves the main line. Valves on hot water and return pipes when such pipes run in the pipe

Fig. 2—The view above shows the risers for the two circuit vent lines, one for each separate line of water closets. At the right of the picture, the three vents coming through the floor are for three urinals. Two lavatory connections are seen at the extreme right



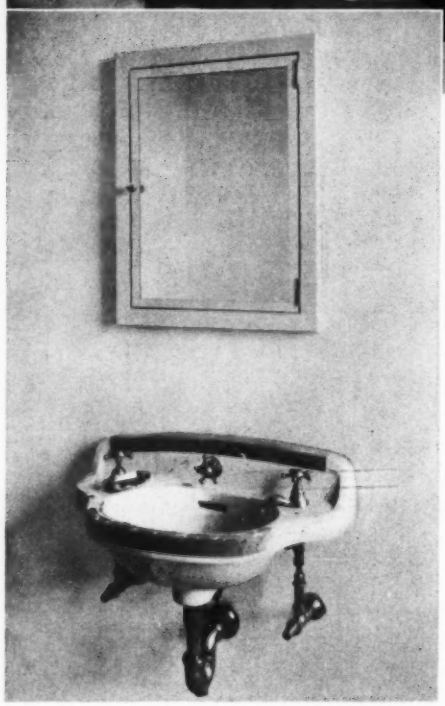


Fig. 3—Above: The valving connected with the hot and cold water supplies is thorough. A valve is supplied on every branch where it leaves the main line. Valves on hot water and return pipes when such are run in the pipe tunnel, are located in the tunnel

Fig. 4—Left: The general plan that has been followed is to provide each private room with a lavatory, all other toilet arrangements being taken care of by the large toilet rooms located on each floor. Hundreds of these lavatories have been and are yet to be installed

tunnel are located in the tunnel. A curb cock and box are provided at points where cold water branches leave the underground cold water main. Valves are placed at the inside front wall of buildings on all mains. A valve is placed at the foot of each rising supply line.

A VALVE ON EVERY BRANCH

The pipe tunnel is provided with a 4-inch drain at intervals of something like 300 or 400 ft. More or less water naturally finds its way into the pipe tunnel or forms by condensation, and this is carried away by these drains. Over each drain a cast iron cover is placed.

The plumbing arrangements in several of the buildings now under construction are very similar. In Fig. 2 is seen the partly completed roughing for two toilet rooms on the second floor of the married employees' home, one for men and the other for women. This work is typical of that found in the toilet rooms of the nurses' home, female employees' home, administration building and others.

TYPICAL PLAN FOLLOWED

These buildings may be considered dormitories. Private bathrooms have been provided only to a very limited extent. The general plan that has been followed is to provide each private room with a lavatory, such as shown in Fig. 4, all other toilet arrangments being provided by the large toilet rooms located on each floor.

Circuit venting has been employed. Fig. 2 shows the risers for the two circuit vent lines, one for each separate line of water closets.

At the right of the picture, the three vents coming through the floor are for three urinals, with two lavatory connections at the extreme right.

The use of the cleanout on each water closet bend is more or less unusual. However, inasmuch as these cleanouts will be easily accessible in the utility chamber back of each water closet line, they will no doubt be very serviceable.

It should be pointed out that the water closet outlets are above the floor, showing that the water closets are to be of the wall-hung type.

There will be hundreds of the lavatories shown in Fig. 4 distributed through the various buildings.

The plumbing for the staff houses is simple and compact and of interest. Each staff house provides a home for two of the families of members of the hospital staff. Each family has one-half of the house,

although as far as the plumbing is concerned, the houses are not of the duplex type.

Perhaps the feature of particular interest relative to the staff houses is that each apartment has two bathrooms on the second floor.

Fig. 1 gives a view of this work. As the view shows, while the two bathrooms are not actually back-to-back, they use the same stack. The lavatories and bathtubs are not so closely grouped about the stack that they can be stack-vented, and therefore each of these four fixtures requires separate venting. At the extreme right of the picture the bathtub vent is shown, rising to the ceiling. Often a slight change in design or in location of fixtures will make a much simpler plumbing job, with consequent saving in expense. It seems as if this could have been handled in this instance, in such a way as to provide for the stack venting of the baths and lavatories.

CHANGE IN DESIGN POSSIBLE

A point which may not be so clear from the picture is that the waste from the lavatory and bathtub in each bathroom, discharges into a branch fitting between the lead closet bend and the stack. This is a good method.

One of the interesting features of the plumbing installation of Fairfield State hospital is the system of drinking water that is planned. In common with most other services for this institution, this supply is developed at a central point and distributed wherever it is required, instead of each building making its own supply.

The refrigerated drinking water plant is located in the dining hall and kitchen unit building. The ice water supply main and the main return are carried in the main concrete pipe tunnel with branches taken out to such buildings as are to be supplied. Wherever the ice main and return run outside the tunnel, they are to be covered with cork covering.

In the case of the masonry, carpentry, painting, electrical, plumbing and heating shops and the laundry building, which are considerably removed from the dining hall building, unit self-contained drinking fountain coolers are used. From these coolers ½-in. supplies are run to wall-type drinking fountains. This work is included in the plumbing contract.

OVERHEAD FEED FOR HOT AND COLD

With the exception of the reception hospital, general hospital, staff dining hall and staff residences, all buildings in units No. 1 and No. 2 are provided with an overhead feed for all hot and cold water lines, with a circulating loop in the basement.

Grease traps are to be provided for dishwashing sinks located in the general hospital building, for the diet kitchen sinks in both reception and general hospital and for the dishwasher and pot sinks in the staff dining hall.

Nothing seems to have been forgotten in planning for the care and comfort of the future inmates of the hospital, and for the employes as well. As a matter of fact, we have no doubt that a great majority of both inmates and employes will be provided here with greater comfort than they have ever before enjoyed. Indeed, it is a part of good judgment and foresight to provide the employes of such an institution as a home or hospital for feeble-minded, with everything that will help to counteract the depressing influences that they may be subject to in the carrying out of their duties among the unfortunate inmates.

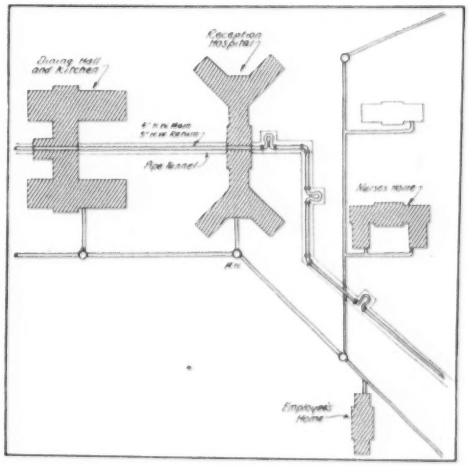


Fig. 6—At the right is a plan view of the buildings shown below. The connecting tunnels for the different pipe lines are indicated

Fig. 5—Below: This photograph shows just four of the seventy-four buildings which comprise the entire project. Accordingly, some idea is gained as to the great size of the project. At the extreme left are the connected buildings which contain the extensive dining rooms and the kitchens. The building under construction is the reception hospital. Next is the nurses' home and at the extreme right is the employees' home

Solve Trouble Job in Hot Water System Under Pressure

Comments by
H. T. HALL

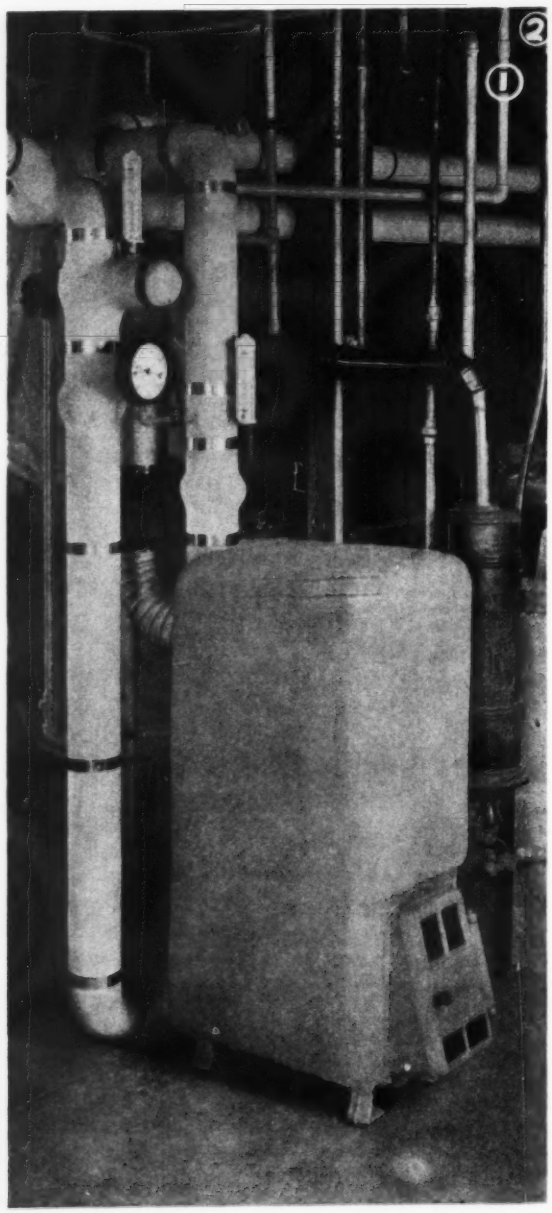


Fig. 1—This gas fired hot water heating system was designed to operate under pressure. Pipe No. 1 in the upper right hand corner is the expansion line, and No. 2 is the overflow

TO THE EDITOR:

THE accompanying sketch (Fig. 3) and the case explained herewith cover a trouble job we solved.

We had made a closed hot water heating system, and had installed a relief valve on the expansion tank. The idea was to make a better working system by producing a pressure which would raise the boiling point of the water anywhere from 25 to 30 deg. Fahr. and, thereby, cause a quicker circulation and a resultant fuel economy with the use of smaller size pipe.

There was a drawback, however, in that after the first few firings, the owner would notice that some water had overflowed, and that the indicator needle on the altitude gage hovered near the zero mark. On the assumption that the system was low in water, he would let in more water until both hands of the gage coincided. This did not remedy the situation as the next firing would cause an immediate overflow.

What had actually happened was that after the first few firings the relief valve allowed enough air to escape to cause a resultant overflowing of the water and the creation of a vacuum as the water in the system cooled. This, of course, gave a false reading on the altitude gage, which led the owner to let more water in the system.

To overcome this we installed a vacuum breaker, and by-passed it around the relief valve. The system has given no trouble since. Fig. 3 shows the piping. The two photographs show the heating system.

The hot water heater beside it is for domestic purposes only, being used as an auxiliary to a solar system both of which tie into a tank in the attic. The domestic hot water heater is thermostatically controlled, and supplements the heat obtained from the sun.

The extra thermometer on the return main of the heating system is only for experimental purposes, and was installed to actually find the temperature of the water coming back to the heater, the difference being approximately 15 deg. Fahr. when all radiators are hot.

The thermostat for the system is located in a cross behind this thermometer, and is set for a fluctuation of about 5 deg.

The altitude gage red hand is set at 12 ft., the other hand indicates a pressure, rising to a peak of about 17 ft. shortly after the system is turned on. The thermometer on the supply side registers 235 deg. Fahr. at this peak.

The expansion tank riser and the overflow pipe from the tank have been numbered 1 and 2 respectively on the photograph. The relief valve on the expansion tank is

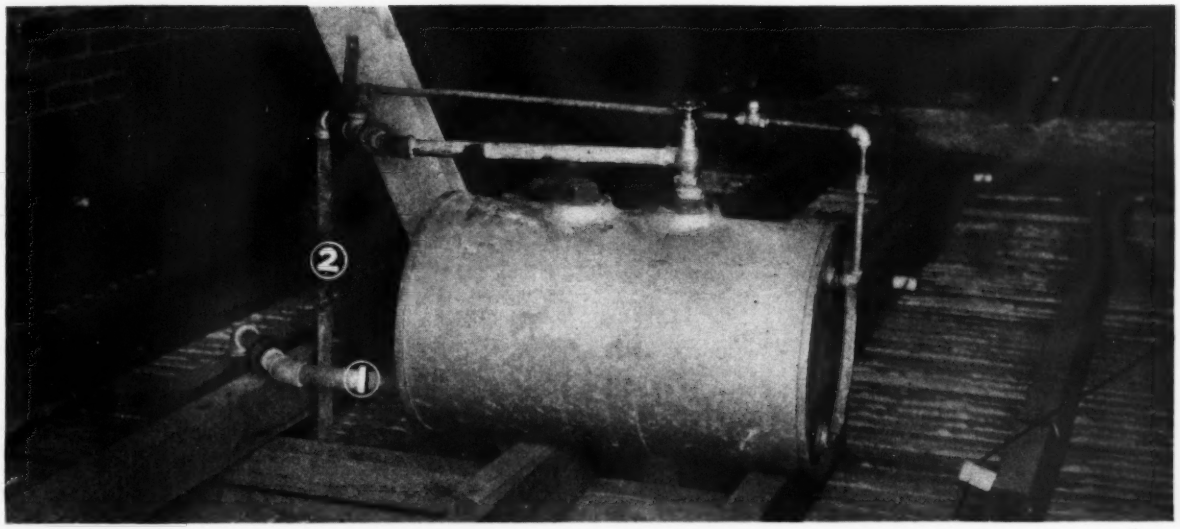


Fig. 2—Here is a photograph of the tank in the attic and the piping connections which were worked out. Note that the pipes at the left are numbered to correspond with those seen in Fig. 1 at the upper right

set for 10 lb. pressure and the vacuum breaker is a ¼-in. ball check valve.

The vacuum breaker is placed in a by-pass around the relief valve, as can be seen from the photograph, the open end being hooked into the overflow pipe which terminates two inches above the basement floor. This breaker allows the system to build up a pressure, but air is admitted through the overflow pipe to break a vacuum. The cause of this vacuum has been explained in the foregoing.

The system works well, and will heat all radiators in about one-half hour. .

California. J. J. M.

AN ENGINEER'S COMMENTS

The correspondent in California has shown a great amount of ingenuity in working out a solution to his difficulty in the manner in which he did. The answer should prove of value to some of our readers who may be faced with the same difficulty either now or, possibly at some future date. There is no reason why the arrangement should not work well and—under the circumstances—is a very adroit means of getting out of the difficulty. It will be noted that the hot water heating system is a closed system with an artificial pressure added to the normal gravity pressure. Of course this aided the circulation but at the same time it introduced the trouble already described.

We are wondering if our correspondent has considered the matter of installing the relief valve on the lower part of the system so that—if any relief takes place—it will be a water loss and not an air loss. Of course any water loss which occurred could readily be made up by adding water to the system just the way the owner was doing and the loss of air would automatically have been prevented. In fact the usual closed system avoids the difficulty of either manually adding water to the system or the loss of air from the system by the expedient of putting on a reducing valve on the cold water supply and then installing the relief valve in the same line just beyond the location of the reducing valve. This is illustrated in Fig. 4, and either a tank-in-basement or a tank-in-attic can be used with this arrangement.

The function of the tank on a closed hot water system is to act like a spring to supply the additional pressure required to raise the boiling point of the water so that the temperature of the water safely may be raised to a

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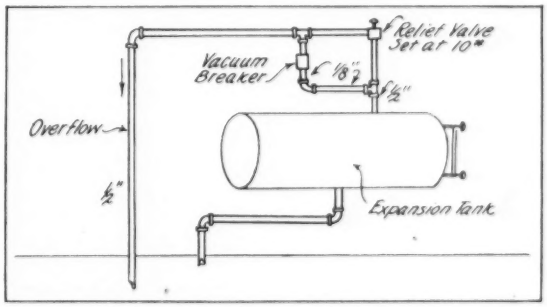


Fig. 3—Detail of the piping connections shown in Fig. 2

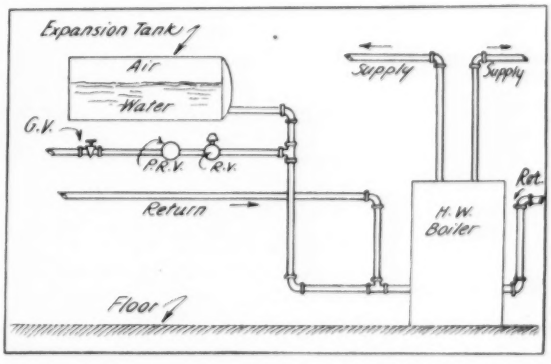


Fig. 4—This shows another way in which the difficulties might have been corrected. The tank is in the basement together with a pressure reducing valve and a relief valve on the water supply line

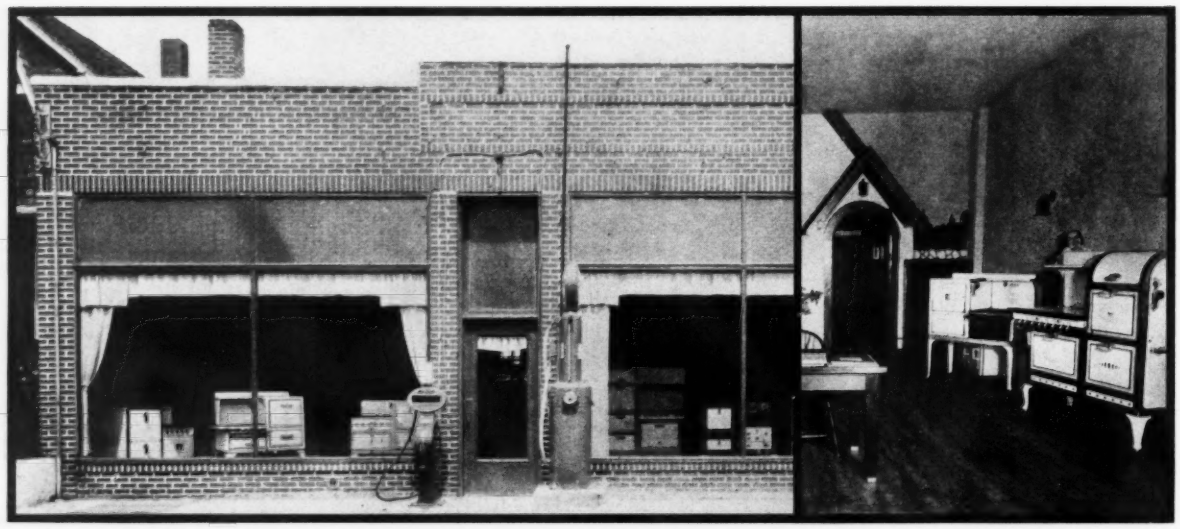


Fig. 1—At the left is an exterior view of one showroom maintained by a plumbing and heating contractor who has made a success of promoting the use of bottled gas beyond the gas mains. The view at the right shows the interior with some of his gas stoves on display

Sales of Bottled Gas Increase as More Dealers Enter Field

Information Given by Those Successful in This New Work

AN INCREASE of nearly 10,500,000 gallons, representing a gain over 1930 sales of 58 per cent, brought the 1931 marketed production of liquefied petroleum (bottled) gases to a total of 28,502,819 gallons, according to the United States Bureau of Mines, Department of Commerce. The 1931 increase exceeded that record for 1930, when marketed production was approximately 8,000,000 gallons higher than in the preceding year.

One dealer who handles bottled gas as a part of his regular plumbing and heating business in one section of Indiana states that he has sold and installed gas which is distributed in containers for the last six years. His other comments are as follows:

METHODS USED BY INDIANA DEALER

We have handled and installed gas which is sold in containers for the last six years. With the exception of unloading and placing the gas range, installing is a one-man job. Merely a matter of connecting the stove to the gas drums with 3/16-in. brass tubing. Compression fittings are used in our work.

Our business is not large enough to require a separate gas department, but the actual installing and servicing is done by experienced gas men.

A convenient place for the gas drums is most important in making the installation. That is, a place where the drums may be exchanged easily when they become empty. The most direct route for the tubing is also important.

Prospects are located by replies to newspaper advertisements, leads given us by users of our gas, people calling at the showroom and reference to our home survey cards.

Most of the prospects are sold in their homes by salesmen. They often come to the showroom to choose their stove and see the gas demonstrated, but it is not uncommon to sell the gas on its reputation. Trial periods are seldom given.

Yes, we do maintain a showroom.

The appliance selling part of our work is much greater in volume and importance than the handling of gas.

The gas we sell is installed in alternate drums. When one drum is empty the customer telephones us and within a week we replace the empty drum.

We have a special gas delivery truck. Since the length of time that a drum of gas will last varies with the amount used, we have found it is impossible to have a definite routing system. However, we group our deliveries and service all the customers in a district.

We use photographs in selling new customers.

The photograph marked Fig. 3 shows our special gas delivery truck. This view was taken just as we were about to deliver a small kitchenette job.

We have found that common sense rather than a fixed rule is about the only guide used in installing the gas drums. A new man taking up this type of work would certainly have to be of average intelligence and able to solve his own problems regarding the location of the drums according to the situation.

APPLIANCES 60 PER CENT OF SALES

We have never found it necessary to relocate gas drums.

Over a period of a year the appliance selling part of the gas business is about sixty per cent of the total sales for that year. In any locality the average price of a stove is about $125. A drum of the gas we handle lasts on the average six weeks. Therefore, in a year the customer would use about eight drums.

However, there is no resale on the stoves, while each installation adds a constant customer for gas. Over a period of several years the gas portion of the business would exceed the appliance selling part.

The Automatic Burner Company of Milwaukee, Wisconsin, is another concern which makes a business of handling gas in containers and gas burning appliances for districts not served by the city gas mains. They say that in their organization the installation of bottle gas equipment is handled by an expert, carefully trained, service man and an assistant using standard gas piping. The cabinets are set on a concrete foundation outside the home, and piping is run to the appliances to be used.

The gas division of our organizations is handled as an entire unit.

The first thing we look for in the installation of our equipment is accessibility for service combined with the necessary regulations as set forth by the board of underwriters regarding gas equipment of this type.

We locate prospects through building reports, Dodge reports, personal contacts of salesmen in the field and leads furnished by satisfied consumers.

Our prospects are sold by personal contact.

We maintain a very well equipped showroom. We also have space where periodic cooking schools are conducted by a domestic science expert.

The appliance part of our work is greater in volume than the handling of gas, as we do not deliver it.

The distribution of gas is handled direct by the local warehouse.

Fig. 3—This shows a light delivery truck distributing drums of gas and a small stove

They maintain a special truck and have worked out a routing system.

The photograph marked Fig. 4 shows a view of a yacht on which we installed equipment using gas supplied in containers. This indicates just one of the many special applications and possibilities in this type of business.

USES OF LIQUEFIED PETROLEUM GASES

A Department of Commerce bulletin states that the most important use of liquefied petroleum gas promises to be that of bringing the advantages of gas service for cooking, water heating, and refrigeration to homes beyond the reach of city gas mains. For these domestic uses a supply of gas which is in containers is as satisfactory in every respect, except cost and the inconveni-

Fig. 2—Here is an exhibit which was staged by a plumbing contractor at a fair in LaFayette, Illinois

ence of replacing empty cylinders, as the best manufactured or natural gas service. The cost of this service, relative to that of another gas supply, can be computed by comparing the cost per heat unit (not the cost per cubic foot).

A bulletin of Purdue University states that records kept by rural homemakers indicate the average time spent in the care and cleaning of cooking stoves using all fuels was one hour and forty-two minutes per week. Homemakers cooking with coal and wood spent three hours and two minutes per week or, in a year, the equivalent of twenty days of eight hours each in kindling fires, carrying fuel, removing ashes and cleaning stoves. The process of cleaning the stove required more time than any other one item.

SYSTEMS FOR MAINTAINING THE SUPPLY OF GAS

With the different fuels used there was an average time of 47.5 minutes per week spent in cleaning the stove. The time required for cleaning a coal and wood stove was fifty-six minutes per week.

The bulletin further showed that other records kept by rural agencies indicated that for the several fuels used, the average amount of time spent per week with cooking was fifteen hours and three minutes for top cooking and four hours and twenty-four minutes for cooking processes in the oven. Homemakers using coal and wood stoves for cooking spent the most time both in the use of the top cooking surface and of the oven.

Additional Department of Commerce comments are contained in the following:

Two systems are in use for maintaining service. In the system more commonly employed, two cylinders of the fuel gas are installed in a metal cabinet outside the owner's home. Gas is used from one cylinder until it is empty. The other cylinder is then turned on, and the empty cylinder is returned to the dealer and a full one put in its place. In the less commonly used system, a single large cylinder is installed and periodically filled from a service tank, the amount of fuel supplied being determined by weighing the cylinder before and after it is filled from the supply.

The single cylinder system is obviously impracticable unless enough customers are grouped near together to justify the operation of a delivery truck to supply them. Where customers are closely grouped, the single-cylinder system should have considerable advantages of convenience and economy.

In all cases, liquefied petroleum gases should be purchased by weight. The reading of a pressure gauge gives no indication of the amount of fuel in a container until it is practically empty. The capacities of cylinders range from 25 to 50 lb.; the ones more commonly used contain 60 and 100 lb.

In using liquefied petroleum gases, a considerable amount of care should be exercised in the selection of the appliances with which they are used. In general, the recommendations of the company supplying the fuel should be followed, but it should be kept in mind that an appliance built to burn propane differs from one for manufactured or natural gas only in the change of a few simple dimensions, mainly drill sizes. The appliance and its accessories including pressure controls should be carefully adjusted. The tabular information at the bottom of this page is from a recent news bulletin of the Bureau of Mines and shows the rapid development, in recent years, of the sale of these liquefied gases.

Fig. 4—Here is just one of the many special applications and possibilities in bottled gas work. The Milwaukee heating dealer referred to in this article installed on this yacht the galley range equipment using gas supplied in containers

An approximate segregation of the gases marketed indicates that the 1931 distribution of propane was about 15,000,000 gallons, as compared with 11,500,000 gallons in 1930 and that the distribution of butane, pentane and 10717.

Marketed Production of Liquefied Petroleum Gases, 1922-1931

Year	*Gallons*
1922	222,641
1923	276,863
1924	376,488
1925	403,674
1926	465,085
1927	1,091,005
1928	4,522,899
1929	9,930,964
1930	18,017,347
1931	28,502,819

All homes in the United States not now connected with mains supplying natural or manufactured gas, could readily be supplied with bottled gas service for the domestic uses for which fuel gas is commonly employed in cities according to the above.

How Hotel Water Supply Was Changed for Economy

By HARRY DAVIDSON

TEN thousand dollars a year is a lot of money to save on a single item, but that is what one of the leading hotels in the South is now saving on its annual water bill.

This result was accomplished by the installation of their own private water supply system, entirely apart from the regular city supply. The saving which resulted does not tell the whole story, in addition, the hotel makes a very considerable profit on the sale of water to a second nearby smaller hotel and to one of the largest cafeterias in the city.

Here is the story. In this particular city the water rate is exceedingly high—50 cents per thousand to the home owner, with only a nominal reduction for larger use such as hotels would have.

Under such conditions it is not surprising that the water bill for this particular hotel should have mounted to something like $11,000 per year.

It is claimed that the total cost in changing from the city supply to the private supply was only about $2,000 to $2,500. Therefore it seems fair to estimate the saving in cost of obtaining a supply of water for the hotel, as the difference between $11,000 and the interest on this investment, plus a nominal amount for slight additional operating expense. The new system, however, has not made necessary the employment of any additional labor. In figuring the saving, profit on the sale of water, such as we have mentioned, should not be overlooked.

Whether this particular city is justified in their high water rate, we are unable to judge, and it is not a matter that is to the point in this article. We would say, however, that the regular city supply is piped from a system of wells, through 35 to 40 miles of pipe, and this, of course, is sufficient reason for a high water rate.

At a depth of 25 ft. below the surface, there is an abundant supply of water, and it is from this source that this private hotel supply is obtained.

Thirteen wells have been sunk, and it is this supply, pumped to a roof tank, that furnishes all the water that is required for all purposes.

It is fair to state that while the supply is ample, in all probability, it would fail if the practice of sinking wells should become general in one locality.

The city water supply is hard, and before being carried to the storage tank on the roof, was passed through water softeners. In the new supply system the softeners have been given up. They will be seen in Fig. 3, the two large cylindrical tanks at the rear.

After being softened this water was very corrosive. The supply piping became filled with rust, and rusty water was the result.

Hotel guests find little pleasure in drinking or bathing in rusty water, and patronage of the hotel became seriously affected. As a defense against this serious condition, engineers employed to solve the problem, turned to the underground supply, and from the first day's use the change has been most successful. The system itself and the methods employed are very interesting, and are

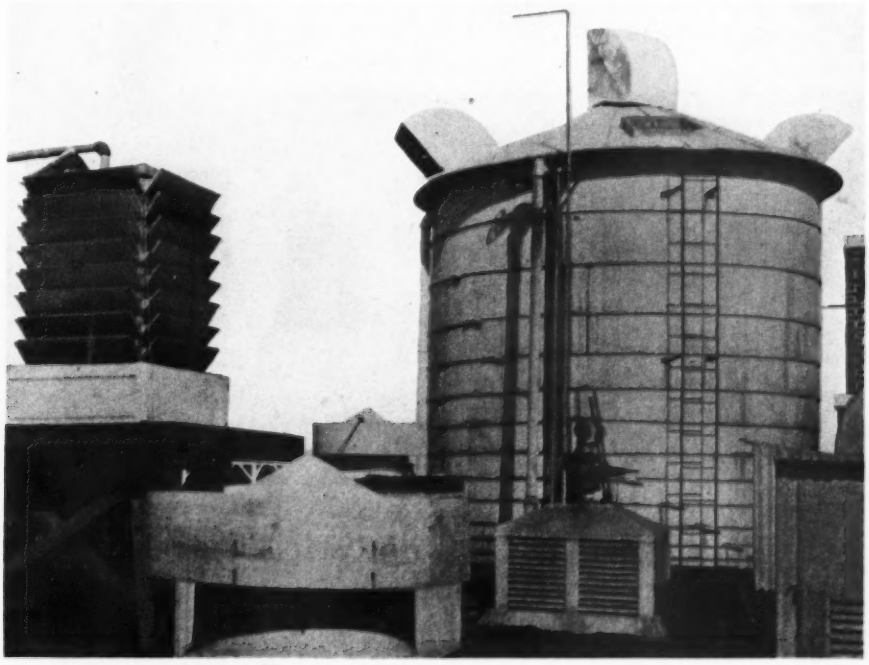


Fig. 1—This is the top of the hotel roof and shows the aerator and the storage tank

approximately as outlined in the following description.

The water pumped from the thirteen shallow wells is raised to a point above the roof, where it discharges through an open end over an aerator. After passing through the aerator, which is seen in Fig. 1, the water falls by gravity to the basement, where it receives a soda-ash treatment, thence to the mixing tank and then through the filters.

From the filters the purified water goes to the group of open tanks, seen in Fig. 4. From these tanks the water is pumped a second time to the roof, into the storage tank, and from here it is delivered by gravity to all parts of the building.

As we have already pointed out, this filtered, treated water is used for all purposes, drinking, cooking, at the lavatories and the flush valves. There is so little expense in preparing the water that it is far less expensive to use the one kind of water for all purposes, than to use the prepared water for drinking and domestic purposes, and the natural water for bathroom use.

The same roof tank is in use under the new system as under the old. It has a capacity of 12,000 gallons, and is to be seen in Fig. 1.

Three ventilators are to be seen on top of the storage tank. These were employed for the purpose of reducing the odor and taste of sulphur, which was a serious matter under the old system. So bad was this odor that in the basement, where the open tanks are located, it was exceedingly obnoxious.

Sulphurous odors and taste are entirely removed from the water under the new system, by passing the water through the aerator on the roof. This is a system of wooden shelves set at such an angle as to break up the water as it passes over them. The trickling of the water through the aerator gives it full exposure to the air. This aerating process is one of the essential features in producing a palatable supply in this particular instance.

The soda-ash treatment acts to assemble and combine the chemical impurities in the water, getting them into such condition that when the water passes through the filters, they are held back, and prevented from passing on to the tanks.

The manner in which this soda-ash treatment is applied is interesting. The soda-ash apparatus may be seen in Fig. 3. Directly opposite the soda-ash container or tank, a venturi tube is placed in the line run-

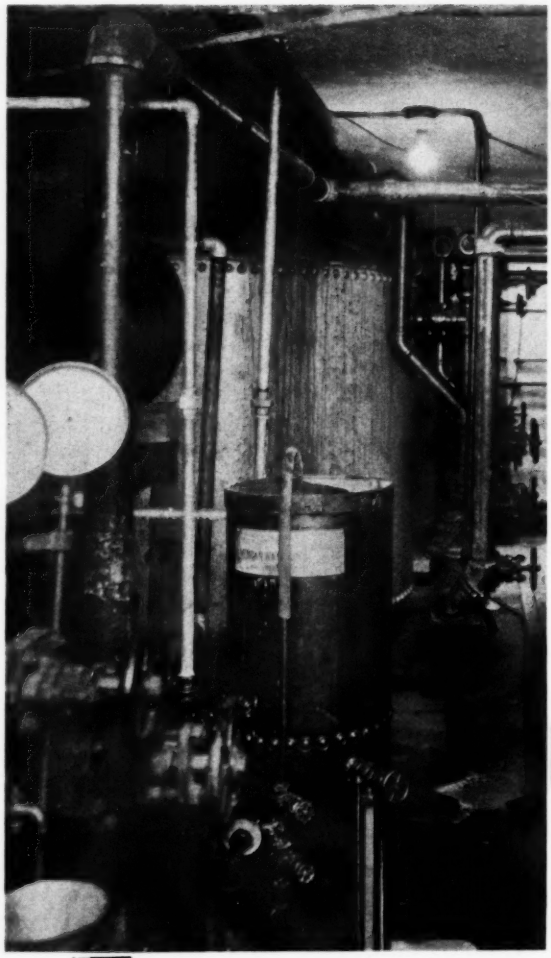


Fig. 3—Above: The mixing tank, at the upper left, the soda-ash tank and the water softeners

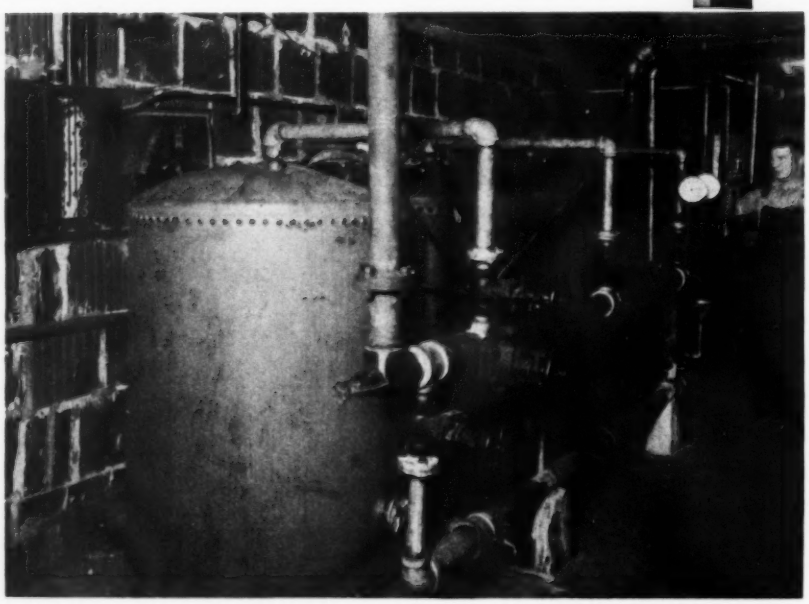


Fig. 2—Left: Battery of three filters and horizontal mixing tank. Note the end of the tank is also shown above

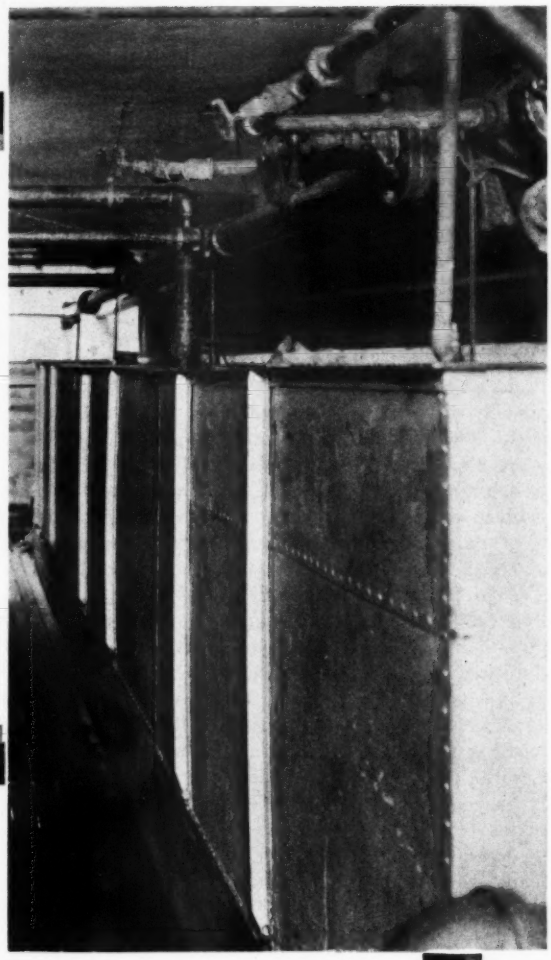


Fig. 4—Above: This photograph joins the one at the left. It shows the open water tanks

Fig. 5—Right: The hotel water supply pumping equipment. The open water tanks of the above view also are shown here at the left

ning from the mixing tank to the filters, both of which are to to be seen in Fig. 2. The venturi tube acts somewhat in the manner of an injector, producing a suction which draws a very small amount of the soda ash into the supply line, as the water flows past. The passage way through the venturi tube reduces to 1-in. diameter, which seems to the casual observer to be entirely incapable of passing a sufficient amount of water. Nevertheless this size of orifice is ample, for it allows a constant flow of 100 gallons of water per minute.

Such a process as this needs careful attention, and in this particular instance it is given. Hourly chemical tests of the water are made, and necessary adjustments result accordingly.

The filters also need unremitting attention. They are backwashed daily.

It goes without saying that water systems such as we are describing can easily fail through carelessness and inattention to details.

The well points also have to be taken care of. They need to be cleaned at least once each year. In order to do this with the least trouble, the suction pipes with the well points on their ends are carried down in steel casings rather than driven through the ground.

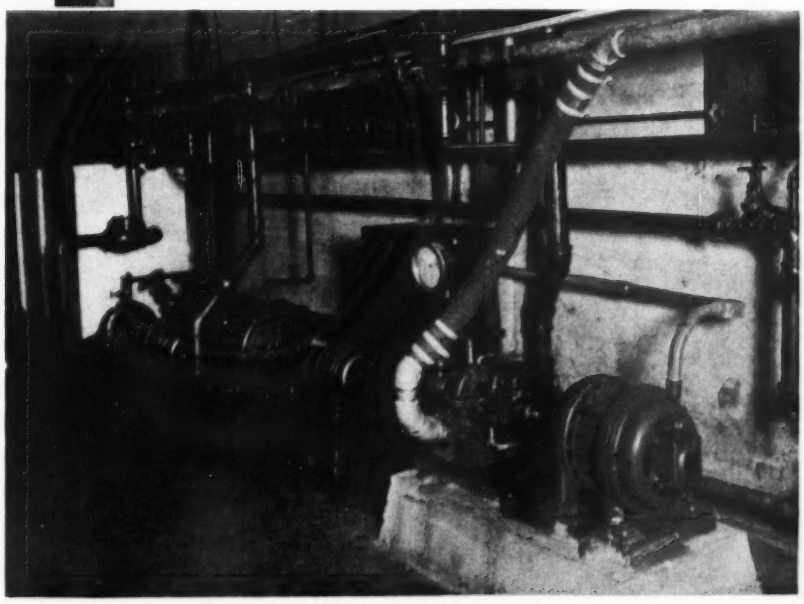
The thirteen wells are located in small groups at several points in the basement, at considerable distances apart.

The plumbing equipment is shown in Fig. 5. The pump in the foreground is the well pump. The rubber hose connection seen on the discharge line is made use of to overcome the vibration of the pump. This was quite a serious difficulty, a source of annoyance to guests, and has been largely overcome by use of this rubber connection.

The middle pump shown in Fig. 5 is no longer in use. It was employed under the old system, but proved inadequate for the new system.

The third pump pumps the water from the open tanks, seen in Fig. 4, to the roof tank.

At first thought it seems strange that this water has to be pumped twice to the roof. There are several things, however, that need to be considered in this connection. In the first place the storage tank was already on the roof, before the change was made. In the second place there is no space for using a tank or tanks having a capacity of 12,000 gallons, in the basement.



Heating and

By A. R. STEVENSON, JR., F. H. FAUST AND E. W. ROESSLER

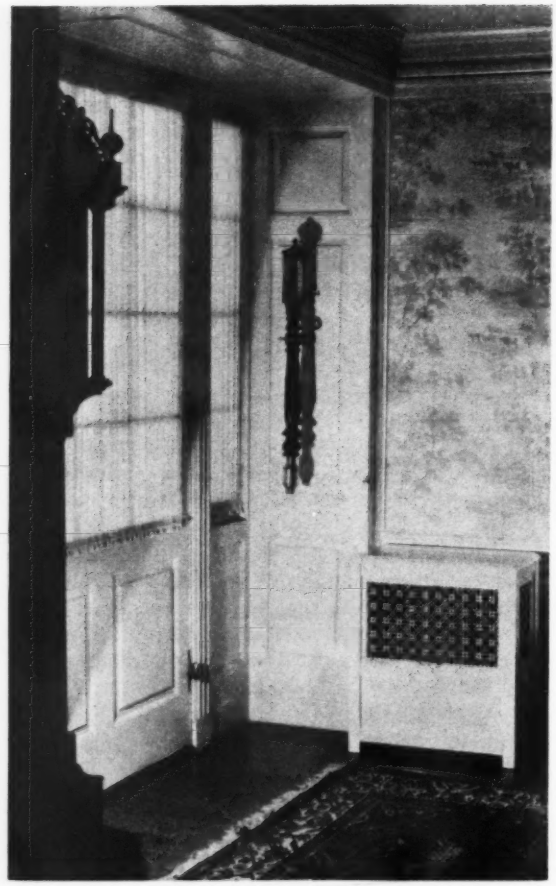


Fig. 1—This view shows one type of air conditioning unit installed in a home

THE American Society of Heating and Ventilating Engineers has developed a scale of effective temperature to correlate the effect of temperature, relative humidity, and air motion on human comfort. For instance, equal comfort is experienced at 65 deg. Fahr., and 100 per cent relative humidity, as at 72.5 deg. Fahr. and 10 per cent humidity. So the effective temperature is said to be 65 deg. in both cases.

It is important to note that conditions best suited for comfort in winter may be, and usually are, not the best suited for comfort in summer. The explanation may be found in the fact that the human body is better able to make adjustments for cold weather than for warm weather. In temperatures below zero, a fair degree of comfort may be obtained by insulating the body with sufficient clothing. In passing from the cold outside to a hot room, an adjustment is made by removing some of the clothes. In summer, only a limited adjustment may be made by adding or removing clothes.

The general practice in winter seems to be to hold the house as accurately at 70 deg. Fahr. as possible, without any regard for humidity. If the humidity can be increased somewhat, it would probably be healthier to hold the house at 68 deg. Fahr. In fact, Ellsworth Huntington, who has studied the effect of climate upon civilization states that 63 deg. Fahr. is the optimum temperature with the humidity held as high as possible. Unless double windows are put on the house to prevent condensation of moisture, it is probably impossible to raise the humidity high enough to make one comfortable at 63 deg. Fahr. In winter, an effective temperature of 65 deg. Fahr. is recommended by many air conditioning engineers. There is apparently no conclusive data with regard to the effect of humidity on health. It is admitted that the humidity in our steam-heated homes in winter is far too low, and it is believed that a higher humidity would be beneficial. It would probably be wise to try to keep the humidity as near 50 per cent as possible without causing condensation on the window panes. Increasing the air velocity inside the window would increase the glass temperature and permit higher humidities to be maintained. A velocity of only 175 ft. per min. inside a single glass window would permit a relative humidity of 24 per cent at 70 deg. Fahr. to be maintained on a 10 deg. Fahr. day, instead of 19 per cent, as from the curves. This increased humidity would be attained, however, by an increased heat loss through the window of 12 per cent. It is interesting to note that, since normal winter humidities run as low as 10 to 20 per cent, practically no humidification may be accomplished in houses with single glass windows until outdoor temperatures reach 10 deg. Fahr. or above.

At first thought, it might seen desirable in summer to cool the house to 70 or 75 deg. Fahr., even during extreme 90 to 100 deg. Fahr. weather. Experience has taught us, however, that this imposes too much of a shock on the body in going into and out of the cooled room. Instead, the indoor conditions should be balanced against outdoor conditions, and probably in no case should the temperature and humidity be lower than that shown in Table 1.

USE OF A HEAT PUMP

Indications from the accompanying table are that a constant value of moisture content of 69 grains/lb. of dry air is desirable.

Strictly speaking, there is no such thing as a heat pump. Actually, however, a refrigerator increases thermal potential and by analogy it is easily comprehended as a heat pump. In heating with refrigerating equipment, the low temperature at which the heat pump must deliver this heat will require radical departures from the ordinary heating system. Radiators of the ordinary

Application of Refrigeration to Cooling of Homes

type would be very large and would have to be fitted with drip pans to carry away the moisture condensed from the air when used for cooling in the summer. Unless placed near the ceiling, they would tend to form a blanket of cold air over the floor without lowering the temperature at the breathing level.

The heat emission of the ordinary cast iron radiator varies as the 1.3 power of the temperature difference between the room and the heating fluid (Item 34 "Bibliography," Ch. 12, p. 205, 1931). With 100 deg. Fahr. water instead of 215 deg. Fahr. steam in a 70 deg. Fahr. room the ratio of outputs would be

$$\frac{H_{100}}{H_{215}} = \frac{(100-70)^{1.3}}{(215-70)} = 0.129$$

Therefore, $\frac{1}{0.129}$, or 7.75 times as large a radiator would be required than if steam were used.

If fan equipped radiators or unit heaters were used, the size would be considerably reduced and the temperature distribution in the rooms improved. In this system, hot water would be circulated for heating in winter and cold water for cooling in summer. Steam at high vacuum would probably not be used for heating, as means for water circulation for cooling would already be available, and due to trouble from air leaking into the radiators it would be difficult to run a vacuum system at the low temperature required for efficiency.

TABLE 1. CONDITIONS RECOMMENDED FOR HOUSE HEATING (A. S. H. V. E.)

Outside Temp. deg. Fahr.	Dry Bulb deg. Fahr.	Wet Bulb deg. Fahr.	Effec. Temp. deg. Fahr.	Relative Humidity %	Grains of moisture/ lb. dry air
95	80.0	65.2	73.4	45.0	69.0
90	78.0	64.5	72.2	47.5	69.0
85	76.5	64.0	71.1	50.0	69.0
80	75.0	63.5	70.2	52.5	69.0
75	73.5	63.0	69.3	56.0	69.0
70	72.0	62.5	68.2	60.0	69.0

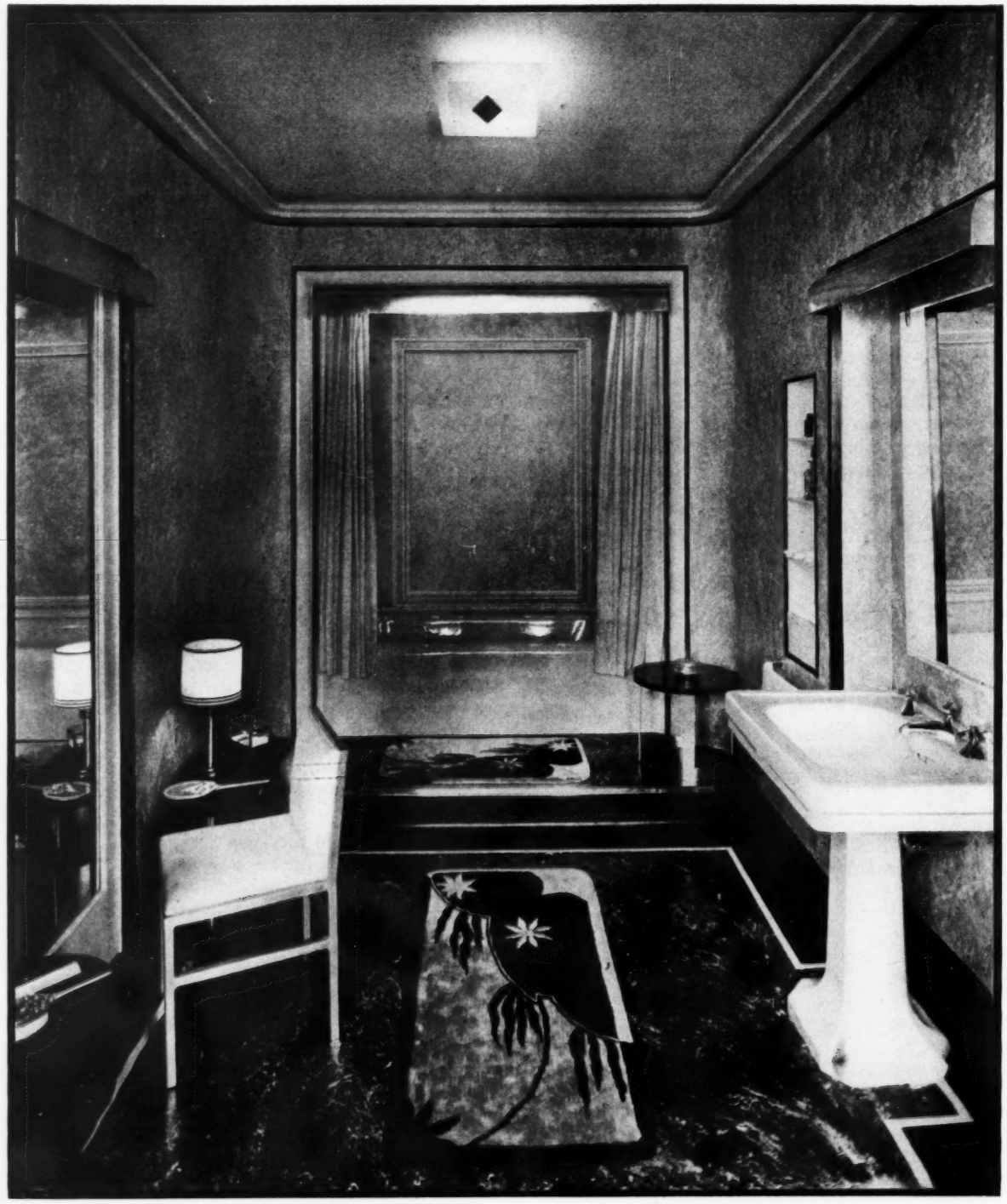
A central warm air system with fan circulation would allow air conditioning to be done in one central unit. A circulation of about four times that of the ordinary gravity warm air system would be necessary in order to keep the temperature of the air heater down to 100 deg. Fahr., even in a well insulated house. Since fan circulation will permit of two or three times the air velocity in the ducts, the duct work will not be more than twice the normal size, and this appears quite feasible. In the research residence at the University of Illinois (Bulletin No. 189), which is heated with a warm air gravity system, about 91,000 Btu./hr. are required on a 10 deg. day. An air circulation of 820 c.f.m. at 146 deg. Fahr. at the furnace bonnet is required to heat the house to 70 deg. Fahr. A well insulated house heated to 70 deg. by a heat pump would on a 10 deg. day require 60,000 Btu./hr., and if all this were supplied by air at 90 deg. Fahr., it would require 3.5 times as much air for the well insulated house. The duct velocity in the research residence, however, is only 175 ft./min., and if with fan circulation 400 ft./min. were used, it would only require 53 per cent more duct area to care for this increased volume.

Panel warming has recently attracted much attention, and is an ideal way of heating with low temperature heat. It would probably not be entirely satisfactory for cooling, as moisture might condense on the walls or ceiling. It might very well be used as an auxiliary heating means in connection with a central warm air system.

We are not attempting, in this paper, to say what the first cost of electric heat pump apparatus would be. The cost of apparatus depends so much on the stage of development and the quantities produced. All new devices come on the market at relatively high prices, and then the prices come down as the field is developed. The prospect of heating houses with heat pumps does not look very attractive economically in northern states.

In the southern half of the country, however, it would seem that, neglecting the first cost of installation, from an operating cost standpoint alone wherever a 2c electric rate is available, the electric heating and cooling of houses is practical. The real advantage in the use of a refrigerating machine comes in the cooling which cannot be accomplished in any other way. The public must be sold on the need for cooling before it will consider the installation of refrigerating machines in its houses. Having sold a cooling equipment, it would be possible to then call attention to the fact that, in the southern parts of the country, this same cooling equipment could be used to heat the house in winter.

This article consists of excerpts taken from a paper which was presented at the 27th annual meeting of the American Society of Refrigerating Engineers, recently held at Cleveland, and reprinted from **Refrigerating Engineering**, February, 1932.



On this page, and on the facing page, are photographs showing what can be done with linoleum type of wall covering in beautifying kitchen and bath

Wall Coverings Make New Opportunities for Sales

This article, the second on the subject, completes our study of various types of wall covering, with which the plumbing contractor should be familiar—for reasons made plain in the text of the article

THIS is the second part of an article designed to give the plumbing contractor information on the various types of wall covering now available. In our first article we touched on the fact that many contractors have found that work in home remodeling has made it advisable for them to act for their customers in handling the complete job, including carpentering and decorating.

Most home owners are better satisfied to have the remodeling job handled as a unit, so as not to be under the necessity of seeing four or five building material men and contractors. An even more important consideration, from the standpoint of the plumbing contractor, is this: After the plumbing contractor's efforts have started a job like this, it is not always well to have the home owner call in a carpenter or other contractor. That has often resulted in the loss of the job to the man who was responsible for starting it. The price element gets injected into the job.

LINOLEUM AS WALL COVERING

Plumbing contractors who make a practice of taking the complete contract on a remodeling job say that it is always easier to sell the plumbing fixtures in this way. "If you can show them how the whole room will look when it's finished," said one Chicago contractor, "It's a lot easier than trying to talk about just the fixtures." There is also the consideration that when the customer has shown no great enthusiasm in connection with the fixtures offered, it is possible to keep the conversation going by shifting to color schemes, total effects, etc. Such is the experience of a man who has specialized on remodeling during the last four years.

It is the purpose of these articles (the first one was published in our issue of December 12, 1931) to give our readers a brief survey of the various types of wall covering available.

A still further type of treatment for walls, with which master plumbers should be familiar, was announced during 1931. This is the use of a special type of linoleum as a wall covering. The manufacturer of this type of wall covering says that the preferable backing for linoleum tile is a finished part of the wall free from all foreign matter and troweled to a smooth finish. Warning is given that plaster must be thoroughly dry before the linoleum is pasted on. This linoleum tile should always be hung as is wall paper; that is, with the seams running vertically. It is hung from the ceiling to the

Top: A kitchen beautified by a tile on metal. Middle: Another linoleum type kitchen. Bottom: A bathroom in the same tile as the kitchen at top, on metal with a finish that is impervious even to hard usage

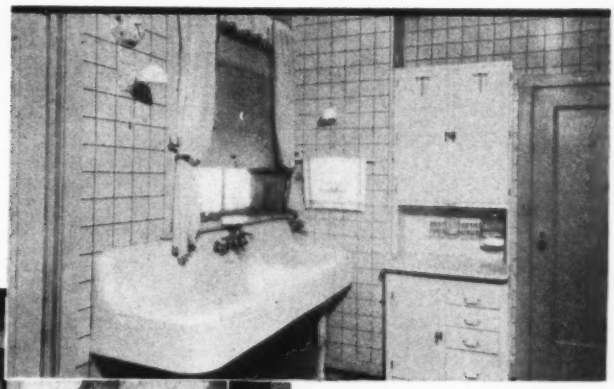
baseboard. The paste furnished for this type of installation is spread on the entire surface of the wall. The sheet of linoleum is then placed on the paste, starting with the ceiling. All air bubbles and lumps are eliminated by using a hand roller or a wooden block covered with felt.

The manufacturer, commenting on this type of wall covering, says that so far as the care of this material is concerned, "we do not feel that it requires any special treatment. In the first place, wall surfaces do not receive wear comparable to floors, therefore, about the only problem involved is the removal of accumulated dirt which settles from the air. This can be accomplished by ordinary washing with a mild soap and some water. Wax is a very good treatment for any linoleum, and if an additional sheen is desired, wax is recommended."

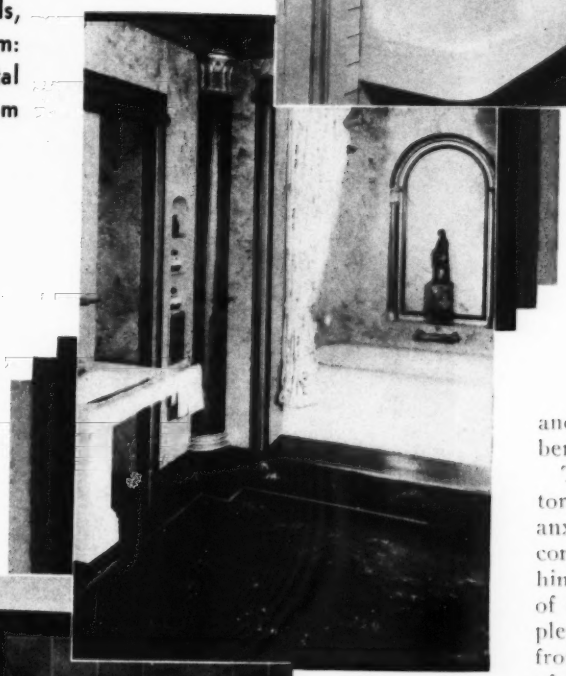
TILE MAKES A COMPLETE FIGURE POSSIBLE

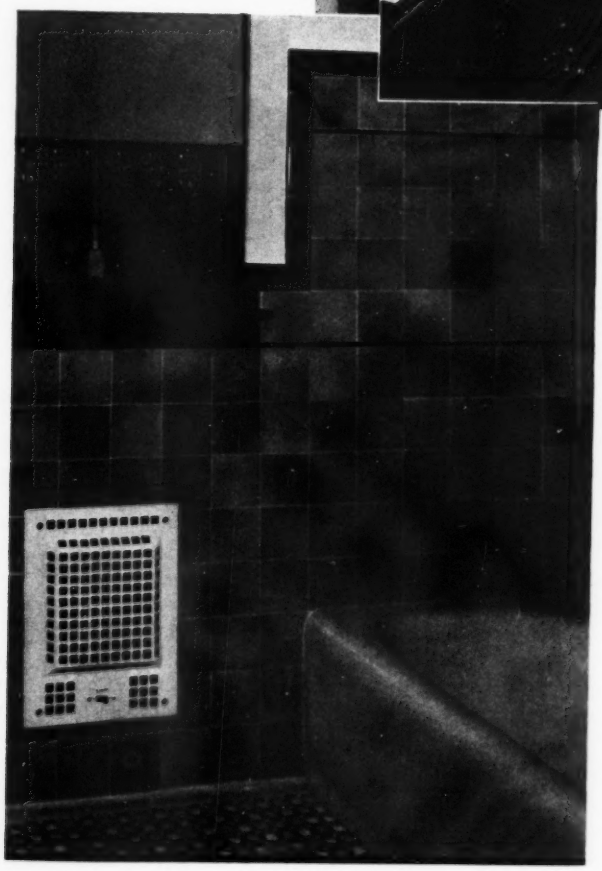
We show reproduction of a kitchen and a bathroom which have been treated with a linoleum wall covering, to give the contractor a general idea of the effects which may be achieved.

A possible development is in the use of rubber tile, such as is placed on floors. It is reported that one manufacturer of plumbing equipment has a large exhibit room in the east, where the covering for the walls was of this type. Rubber, of course, is more familiar, aside from its use on the floor, in connection with wainscoting. There is no reason, of course, why, if this can be applied to a part of the wall, it may not be applied to a greater area or to the entire wall. It comes in a variety of colors



Top: The tile in this kitchen is in sheets, "floated" into place and nailed and cemented. Middle: A bathroom with linoleum walls, floor and base. Bottom: Another type of the metal base tile used in a bathroom





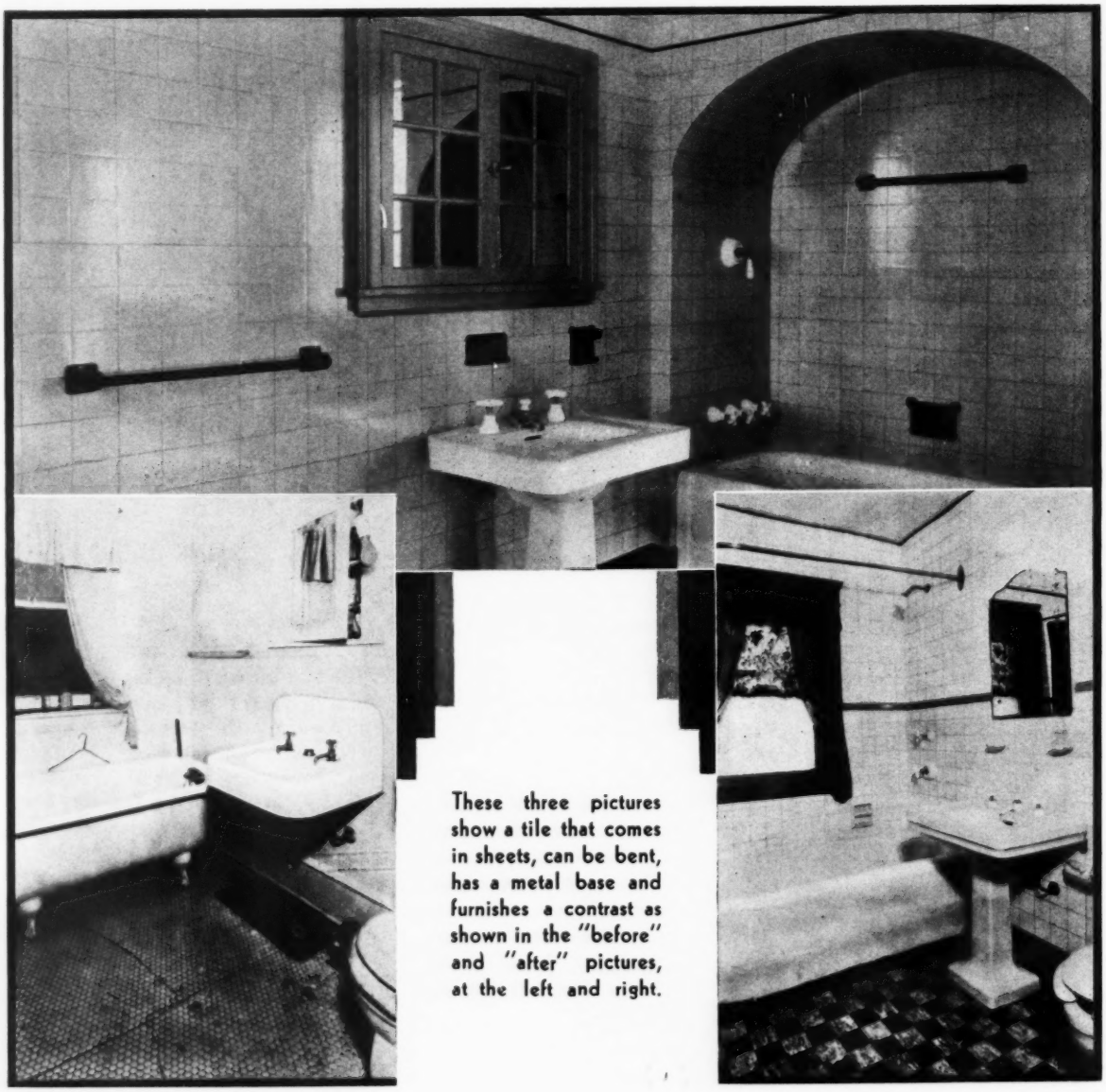
and, of course, in a great number of patterns.

Thus the plumbing contractor, in his remodeling work, and anxious to give his customers a complete service, will familiarize himself with the various types of tile mentioned above. Complete instructions may be had from any of the manufacturers of these tiles as to the methods of applying them, and in no case does it seem that more than ordinary mechanical skill is required. Instructions are very complete and necessary material, such as paste, mouldings, etc., are available from the manufacturer.

A tile on metal may be applied direct over any wavy surface, plaster, painted or wall board or over other wall effects. The installation is built up piece by piece, each tile having a flanged back measuring one-eighth of an inch. On this flange is applied a cement which holds it in place. As is the case with such tiles, it is easily cleaned with soap and water and is impervious to grease.

ANOTHER TYPE OF METAL TILE

We show a photograph of the Noble & Sons display room in Chicago, where the fixtures have been installed with this particular tile as a background. We show also photographs of a job before and after the installation of another type of metal treated tile. This tile is made in sheets of non-corrosive metal on which surface is baked the tile finish and into which is impressed the tile design. The sheets of this particular tile are quite light and pliable and may be applied to practically any shape of surface. The bending of the tile will not crack the finish unless the metal itself is broken. We also show a bathroom finished with this



These three pictures show a tile that comes in sheets, can be bent, has a metal base and furnishes a contrast as shown in the "before" and "after" pictures, at the left and right.

particular type of sheet tile. This tile comes in sheets approximately 16 x 24 inches, giving the appearance of 24 tiles, each 4 x 4 inches. These sheets are applied to wall or ceiling surfaces with a special adhesive and may be applied over any type of surface. It comes in five standard colors, orchid, green, blue, canary yellow and orange, each of which have been treated to give them two color tones. These may also be had in white, ivory or black. For fitting into oddly shaped corners, this particular tile may be cut with heavy scissors. The process of application is not difficult, resembling, in fact, paper-hanging, with the exception, of course, that the metal strips are solid and come in the 16 x 24 inch panels. The adhesive is applied to the back of the sheets, and the sheets are placed against the surface it is to cover, this surface having been previously prepared and suction stopped.

We now come to some other types of tiling which have been developed with a composition other than metal for the base. These tiles, made possible by the development of various wall board compositions, offer the advantage, of course, of being handled, with reference to fitting, very much as lumber is handled. As one manufacturer says, it is not "a substitute or imitation, but a new wall tile in its own right."

This type of tile is furnished in large sheets which are "floated" or slid into place. There is furnished a special type of cement which is spread over the back of the sheet. These are also held in place by 1¼" brads. Brads are driven through score lines and at joints. A special putty is furnished for covering nail holes.

The base of this composition has been treated so that this type of tile comes in all of the required colors. It is impervious to moisture and may be cleaned, as is the case with other tiles, by using soap and water. The surface is glazed and the appearance, of course, is about that of any other type of tile. We show contrasting pictures of before and after modernization with this tile.

OUR INDUSTRY

Doing a Good Job

ALIVE young plumbing and heating contractor made this remark a few days ago. Too many men think of selling the fixture or equipment rather than selling the comfort or convenience which that item will give the customer. He referred to a shower unit which as a piece of equipment is of interest to the mechanical man but to the customer is merely the means by which the pleasure of an invigorating shower may be enjoyed.

A simple enough rule in salesmanship but one worth recalling now and then when talking or thinking about the plumbing and heating business. Our intimate relationship with that business is prone to make us forget the necessary services it performs. Equipment may loom large and the fact be ignored that what counts is the relief from household labor, the health giving conditions it makes possible and the greater assurance of cleanliness and warmth.

In the same way, the shortcomings of the next man in the line of distribution appear as the principal blockade to greater profits—until we get to talking with a man in another industry and find the plumbing and heating man ranked as a model of performance.

Closeness to a problem magnifies its importance. When put in his proper perspective, the plumbing and heating dealer today is seen as doing a good job and what counts just as much, working to do a better one.

Studying Small Home Market

A SECTION of the American public which has played little, if any, part in the sales planning of the building industry, is now the object of study by many business men. That section known as the low income group is taking on the attractiveness with which we all view a virgin market.

This sudden accession of interest can be traced to two causes. One is the dropping away of much of the new contract market from which so many individuals and plants drew their satisfying quota of orders. Another cause is the conviction that improvements in methods could bring down home costs to a level where this low income group could be put into the ranks of buyers.

These two causes have also brought a group of newcomers into closer relationship with the problems of the men who have been serving the residence field. These include men who have been closely associated with the building industry but principally in large construction work. They are seeking to replace that part of their business and construction of a large number of small homes at one time, fits in with their previous mode of thinking and working. They are more likely to think of digging a hundred cellars with a steam shovel than one cellar with a pick and shovel.

Another group is made up of manufacturers, some of them never previously included in the building industry, who are looking for new outlets for their plants.

As a result of these studies, reports are circulating of drastic changes in building methods for small homes. More of the house is to be fabricated in the shop; built-up sections are to be delivered to the job, ready for quick and simple assembly. Much of the skill of the craftsman is to be replaced by the precision of the machine. And a result is to be the wholesale construction of large numbers of homes, modernly equipped but costing only from $2,000 to $3,500 with very small down payments and monthly payments even less than present rents.

In an age of mechanical invention, no industry feels secure from the supersedence of its position by the introduction of new and cheaper methods and products. Building considered as a loosely knit industry made up of many other industries has never been brought into the mechanical groove in which many manufacturing industries now travel. Whether it can be is still a question—but a question worth studying.

Trying Out New Plans

THE search for business is leading to the testing out of new plans and ideas. Some of them have been discussed for years but never generally employed. Others are new. It will take the test of results to certify to their quality or lack of it.

One experiment now being more generally tried is that of the sales leader, or low prices on a cheaper group of items. Many merchants in other lines use this method to attract customers to their stores. Usually a comparison of quality between the cheap items and the better ones, brings about a sale of the higher priced articles on which a profit can be made.

Another test is that of using price tags, a plan which is under trial in the show rooms of many wholesalers and retailers. It originates in the belief, so frequently expressed, that the failure to tell how cheap plumbing and heating goods really are, has led the public to take their expensiveness for granted.

In a period of stress, intensive scrutiny of old methods is inevitable. The trial of new methods is a natural sequence.

Heating in Residences and Small Structures

The eleventh article of this series by H. L. ALT

IT IS customary in vapor systems to use a packless radiator valve on the inlet to the radiators and to use a top connection for the supply. A packless type of graduated valve is shown in Fig. 42 and it should be pointed out that in systems, which do operate below the atmosphere part of the time, the packless type of supply valve is almost a necessity in order to prevent the breaking of the vacuum too quickly by leakage of air into the system around the spindles of the radiator valves; in systems which always operate on an ounce or two above the atmospheric pressure this feature loses some of its importance as any leakage taking place under such conditions will be outward and not inward; at the same time the low pressure existing in the system will not be sufficient to cause much leakage unless the spindle packing is in very bad condition.

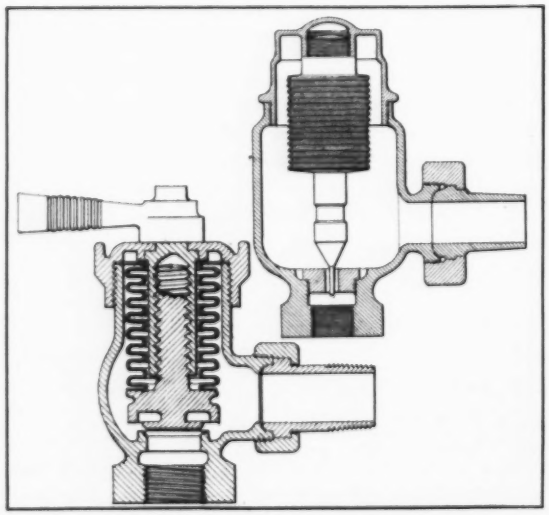


Fig. 42—Lower left. Fig. 43—Upper right

Table XXII

Capacities of Vapor Steam Risers—Upfeed

Pipe Size Nominal Diameter In.	Equivalent Square Feet of Steam Radiation at 240 Btu.
¾	30
1	56
1¼	122
1½	190
2	386
2½	635
3	1129
4	2042

Note—Above table from American Society of Heating and Ventilating Engineers' Guide—1931.

On the return end of the radiator the usual fitting is a thermostatic trap which may be either of the disc type—illustrated in Fig. 45—or of the bellows type illustrated in Fig. 43. Some systems employ a simple elbow in this location and others have a special drainage fitting of some character. When no trap is employed great care must be exercised to keep too much steam from entering

the radiator and extra sections are sometimes used to prevent any surplus vapor finding its way into the return main.

PITCHING AND VENTING THE MAINS

The practice most frequently followed in running the mains is to use either one or two loops from the boiler

Table XXIII
Capacities of Vapor Steam Runouts—Not Dripped

Size of Pipe Nominal Diameter In.	Equivalent Square Feet of Steam Radiation at 240 Btu.
1	26
1¼	58
1½	95
2	195
2½	395
3	700
4	1700

Note—Above table from American Society of Heating and Ventilating Engineers' Guide—1931.

to the farthest radiator with a drip on the main dropped down to the floor and run back to the boiler as a wet return. If this practice is not followed and if the main is dripped into a dry return, a thermostatic trap or a deep water seal should be used on the drip to prevent vapor entering the dry return. The steam main nearly always slopes down in the direction of the steam flow

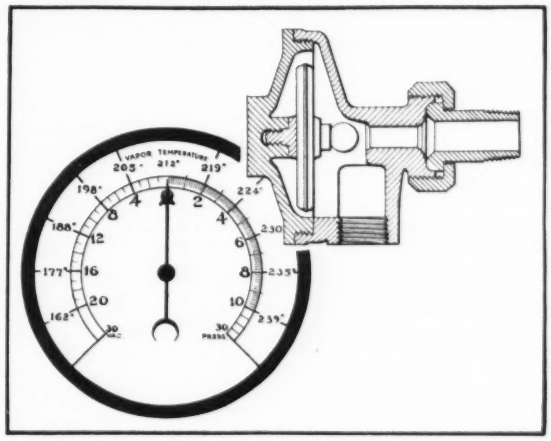


Fig. 44—Lower Left. Fig. 45—Upper right

and the dry return slopes down as it proceeds toward the boiler; this already has been illustrated in the typical layouts of vapor systems shown in Figs. 45 and 47. There are many types of devices used for air venting the dry return at the boiler but the purpose of most of them is to permit a quick passage of the air outward and to prevent its return when a vacuum begins to form in the system.

Every vapor manufacturer has his own schedule of pipe sizes which he considers peculiarly desirable to use on his particular system but the schedule of pipe sizes for vapor steam risers given in Table XXII may be

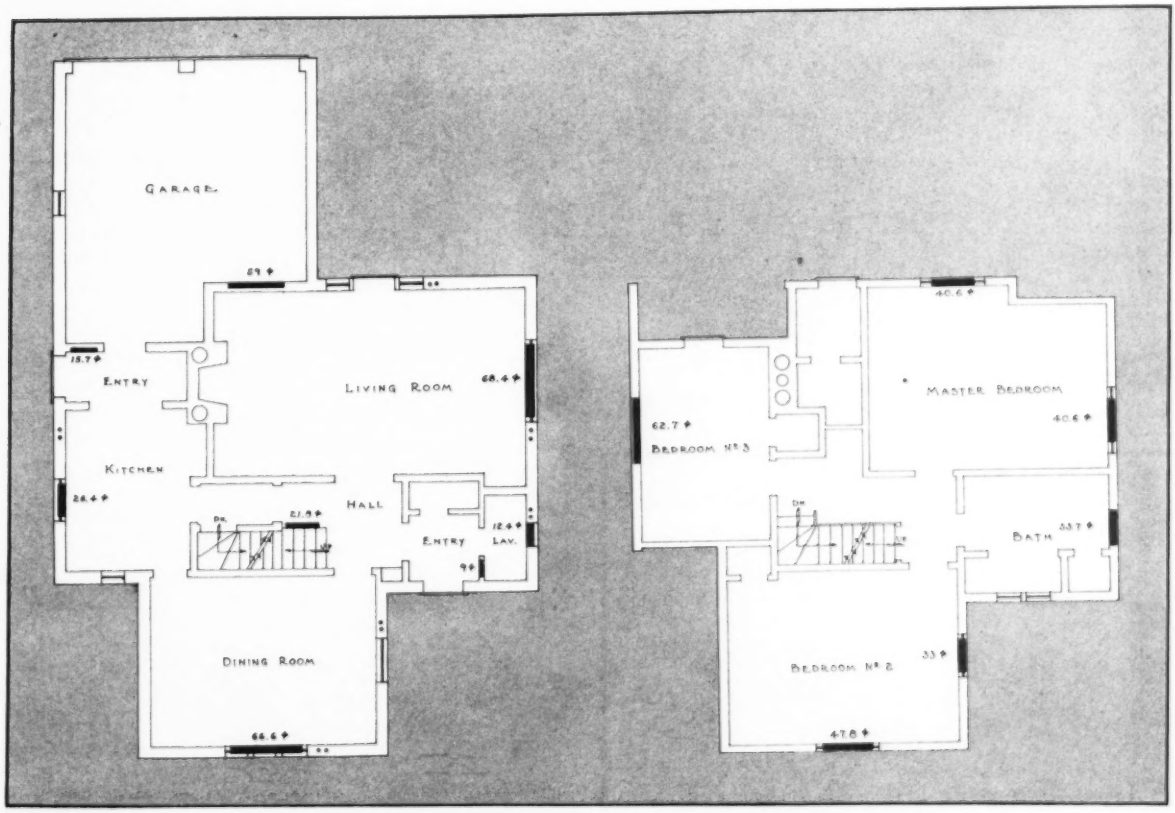


Fig. 46—Left: First floor plan. Fig. 47—Right: Second floor plan

Sizing the Steam Main

ROOM	Radiation Sq. Ft.	Size of Main Req. In. Diam.	Size of Main Used In. Diam.
First Loop			
Entry, 1st Floor	15.7	1	2
Bedroom No. 3	62.7		
Total	78.4	1¼	2
Kitchen	26.4		
Total	104.8	1¼	2
Dining Room	66.6		
Total	171.4	1¼	2
Bedroom No. 2	47.8		
Total	219.2	2	2
Bedroom No. 2	33.0		
Total	252.2	2	2
Entry, 1st Floor	9.0		
Total	261.2	2	2
Lavatory, 1st Floor	12.4		
Total	273.6	2	2
Bath, 2nd Floor	33.7		
Total	307.3	2	2½
Second Loop			
Garage	59.0	1¼	2
Masters Bedroom	40.6		
Total	99.6	1¼	2
Living Room	68.4		
Total	168.0	1½	2
Masters Bedroom	40.6		
Total	208.6	2	2
Combined Main			
First Loop	307.3		
Second Loop	208.6		
Total	515.9	2½	3
Hall	21.8		
Total	537.7	2½	3

Table XXIV

Capacities of Vapor Steam Mains—Run Not Exceeding 200 Ft.

Size of Pipe Nominal Diameter In.	Equivalent Square Feet of Steam Radiation at 240 Btu.
1	56
1¼	122
1½	190
2	386
2½	635
3	1163
4	2457
5	4546

Table XXV

Capacity of Vapor Steam Risers—Downfeed

Size of Pipe Nominal Diameter In.	Equivalent Square Feet of Steam Radiation at 240 Btu.
1	56
1¼	122
1½	190
2	386
2½	635
3	1163
4	2457
5	4546

Note—Tables XXII to XXVIII, inclusive, from American Society of Heating and Ventilating Engineers' Guide—1931.

Sizing the Return Main

ROOM	Radiation Sq. Ft.	Size of Main Req. In. Diam.	Size of Main Used In. Diam.
First Loop			
Bathroom	33.7	1	¾
Lavatory	12.4		
Total	46.1	1	¾
Entry	9.0		
Total	55.1	1	¾
Hall	21.8		
Total	76.9	1	¾
Bedroom No. 2	33.0		
Total	109.9	1	1
Bedroom No. 2	47.8		
Total	157.7	1	1
Dining Room	66.6		
Total	224.3	1	1
Kitchen	26.4		
Total	250.7	1	1
Bedroom No. 3	62.7		
Total	313.4	1	1
Entry	15.7		
Total	329.1	1	1
Second Loop			
Masters Bedroom	40.6	1	¾
Living Room	68.4		
Total	109.0	1	1
Masters Bedroom	40.6		
Total	149.6	1	1
Garage	59.0		
Total	208.6	1	1
Combined Main			
First Loop	329.1		
Second Loop	208.6		
Total	537.7	1¼	1¼

applied with safety to nearly every type of vapor heating except one-pipe systems. The schedule of runouts for these risers is given in Table XXIII and the sizes of the team main itself is shown in Table XXIV. If the risers are arranged for downfeed the schedule given in Table XXV should be used instead of that in Table XXII. For very large installations the sizes should be increased over those shown in the tables and vapor installations involving thousands of square feet of heating surface have been found to work satisfactorily when

Table XXVI

Capacities of Dry Return Mains for Vapor Steam Systems

Size of Pipe Nominal Diameter In.	Equivalent Square Feet of Steam Radiation at 240 Btu.
1	320
1¼	670
1½	1058
2	2300
2½	3800
3	7000

Note—Above table from American Society of Heating and Ventilating Engineers' Guide—1931.

based on pipe tables giving ⅛ lb. drop for the length of run involved. As the discussion herein is limited to smaller installations no attempt will be made here to consider such larger installations.

The dry return mains are sized on the schedule shown in Table XXVI and wet returns under the water line may be sized from Table XXVII. The risers may be sized from the schedule given in Table XXVIII. The manufacturers of the various systems do not pay as much attention to the return pipe sizes as they do to the steam piping. Provided the returns are properly pitched and are of reasonable size little difficulty will be experienced. The grading of a dry return, however, is extremely important as a pocket in this line will effectually air bind the system by holding back the passage of the air. The motive power —by this is meant steam pressure—is usually so small that a very small water seal in the dry return will stop the operation of the whole system.

Vapor systems utilize any ordinary steam boiler but the regulator customarily supplied with such boilers is not sensitive enough for satisfactory vapor operation so a special regulator is used with an unusually large diaphragm which permits an ounce or two of steam pressure to move the regulator and this provides very accurate control of the steam pressure within a very small range. On systems which operate at times below atmospheric pressure a compound boiler pressure gage must be used in place of the ordinary pressure gage which is used on gravity one-pipe

Pipe and Radiator Schedule for Vapor Heated Residence

ROOM	Radiation Sq. Ft.	Steam Req. In.	Steam Used In.	Return Req. In.	Return Used In.
First Loop					
Entry, 1st Floor	15.7	¾	¾	¾	½
Bedroom No. 3	62.7	1¼	1¼	¾	½
Kitchen	26.4	¾	¾	¾	½
Dining Room	66.6	1¼	¾	¾	½
Bedroom No. 2	47.8	1	1¼	¾	¾
Bedroom No. 2	33.0	1	1	¾	¾
Entry, 1st Floor	9.0	¾	¾	¾	½
Lavatory, 1st Floor	12.4	¾	¾	¾	½
Bath, 2nd Floor	33.7	1	1	¾	¾
Second Loop					
Garage	59.0	1¼	¾	¾	½
Masters Bedroom	40.6	1¼	1	¾	¾
Living Room	68.4	1¼	¾	¾	½
Masters Bedroom	40.6	1¼	1	¾	¾
Combined Main					
Hall, 1st Floor	21.8	¾	¾	¾	½
Total Radiation	537.7	2½	3	1¼	1¼

steam systems. This gage reads in inches of vacuum on one side and in ounces or pounds on the other; Fig. 44 illustrates a typical gage used on vapor work.

PRACTICAL INSTALLATION IN RESIDENCE

Having obtained a general idea of the theory and principles of vapor heating it is now possible to take up and discuss the installation of a vapor job as installed in a small residence from the plans laid out by one of the largest vapor manufacturers in the

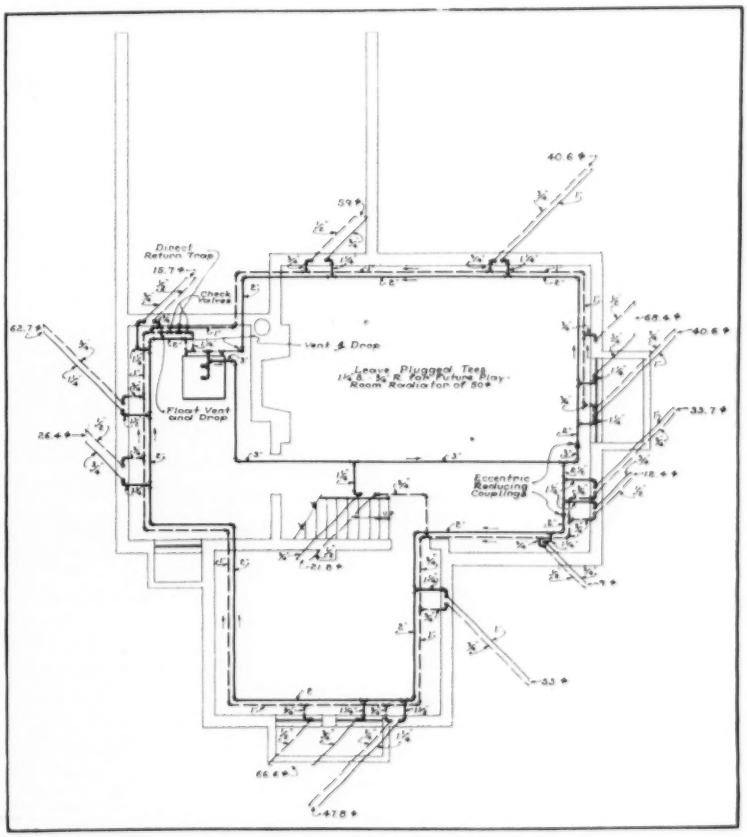


Fig. 48—Basement plan showing piping for system

country. The cellar plan of this residence is given in Fig. 48, the first floor plan in Fig. 46, and the second floor plan in Fig. 47. It will be seen that this was

Table XXVII

Capacities of Wet Return Mains for Vapor Steam Systems

Size of Pipe Nominal Diameter In.	Equivalent Square Feet of Steam Radiation at 240 Btu.
1	700
1¼	1200
1½	1900
2	4000

designed as a two-loop job—that is the steam main is split into two circuits each of which proceeds around the basement and terminates near the boiler; the return main is run with two branches, each branch starting near the point where the steam main splits and proceeding back toward the boiler paralleling the two steam main loops.

A radiator is installed in the garage, seven radiators are placed on the first floor of which six are concealed, and six radiators are located on the second floor, of which all are concealed. All risers are run concealed and, of course, are covered. The steam main slopes down continuously from the boiler steam header, where it starts off, down to the point of splitting and from this point on around the cellar until it reaches the drip at the ends near the boiler. The return pitches down continuously from the point where it starts until it reaches the "float vent and drop" below the water line. This is indicated plainly

Table XXVIII

Capacities of Return Risers on Vapor Steam System

Size of Pipe Nominal Diameter In.	Equivalent Square Feet of Steam Radiation at 240 Btu.
¾	190
1	450
1¼	990
1½	1500
2	3000

in Fig. 48. Eccentric reducing couplings are used where the steam main changes size, but not on the return line. It will be noted that the steam main drips drop down, and enter the boiler return direct, without passing into the dry return at all. Hence no special valves are required on these drips, as the carrying of these drips down under the boiler water line effectually prevents steam penetrating any farther than the level of the water in the boiler. A comparison of the pipe sizes used with those offered in the preceding tables is shown in the table entitled Pipe and Radiator Schedule, page 41.

Practical Problems in Mathematics

HOW TO FIGURE CYLINDRICAL SURFACES

A PROBLEM consists of ascertaining how many square feet of surface must be painted on the sides and bottom of a steel roof tank 10 ft. diameter by 12 ft. high. (See Fig. 1.)

The diameter times 3.14 will give the circumference, so the circumference of this tank is

$10 \times 3.14 = 31.4$ ft. circumference,

and the height of the tank is 12 ft. so the external surface on the side is

31.4×12 ft. $= 376.8$ sq. ft.

The area of the bottom is the diameter squared multiplied by the circumference and divided by 4 or 0.7854 multiplied by the diameter squared.

$D^2 \times 0.7854$ is $10 \times 10 \times 0.7854$ or 78.54 sq. ft. and adding the area of the side to the area of the bottom the total becomes

Area of side ..... 376.8 sq. ft.
Area of bottom ..... 78.54 sq. ft.

Total outside area..... 455.34 sq. ft.

If the tank has to be painted inside as well the area practically would be doubled or

455.34 sq. ft. $\times 2 = 910.68$ sq. ft.

Actually the inner diameter is smaller than the outside diameter by twice the thickness of the metal, but this variation is so small it has been neglected.

If this tank had a conical top with the apex 3 ft. above the top of the tank, as shown in Fig. 2, how much additional surface would be involved? This may be calculated by the formula for the surface of a cone which is

(4) $R \times SL \times 3.14 = A$

where R is radius of base in feet (or inches).

SL the slant height of the top in feet (or inches).

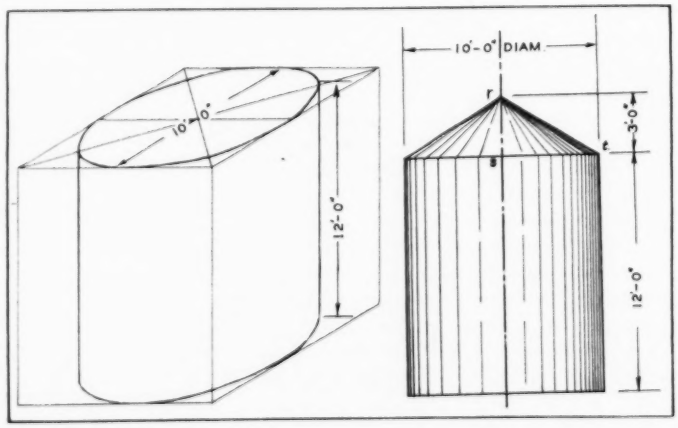


Fig. 1

Fig. 2

3.14 a constant.

A is the area of the surface in sq. ft. (or inches).

Substituting for the particular conical roof in question gives 5 ft. × SL × 3.14.

Now the slant height r-t (Fig. 2) is simply the hypotenuse of the right triangle r-s-t the base of the triangle being half the tank diameter (or 5 ft.) and the height 3 ft.

The hypotenuse of any right angled triangle is equal to the square root of the sum of the squares of the two short sides. Expressed in a formula this becomes

$$(5)\ H = \sqrt{S^2 + s^2}$$

where S is length of one short side in feet (or inches), s is the length of the other short side in feet (or inches), H is hypotenuse or long side in feet (or inches).

Substituting

$$H = \sqrt{5^2 + 3^2}$$

$$H = \sqrt{34}$$

H = 5.83 ft. slant height (or hypotenuse)

and using this 5.83 ft. in place of SL in formula (4) the result is

5 ft. × 5.83 ft. × 3.14 = 91.53 sq. ft.

and the inside will double this or

91.53 × 2 = 183.06 sq. ft.

This problem also may be worked by the short and approximate method of using 3⅛ as the ratio of circumference to diameter thus:

Area of side = 10 ft. diam. × 3⅛ × 12 high
= 375 sq. ft.

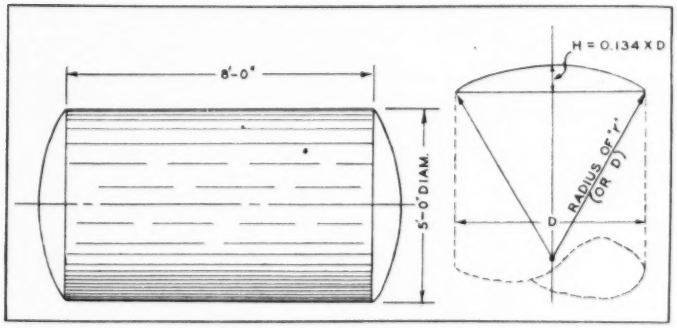


Fig. 3

Fig. 4

Area of bottom = 10 ft. diam. × 10 ft. diam.
× ¾ = 75 sq. ft.

450 sq. ft.
doubling = 900 sq. ft.

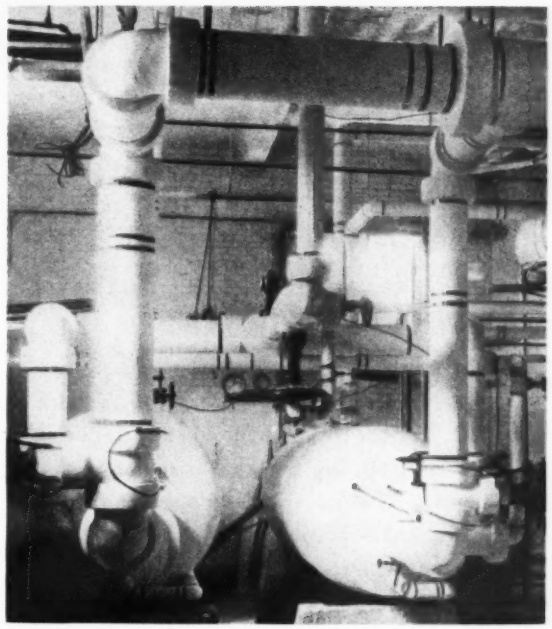
which is somewhat less than the 910.68 sq. ft. previously secured, but is very close. A short way of figuring the top is to take the slant height times the diameter times 1½, thus

5.83 × 10 × 1½ = 87.45 sq. ft.

(against 91.53 computed accurately) or 87.45 × 2 = 174.9 sq. ft. for both sides against 183.06, calculated.

A second problem is to obtain the outside surface of a boiler tube 4 in. in diameter and 10 ft. long. (It must be noted that a 4-in. boiler tube is 4 in. outside diameter while a 4-in. pipe is approximately 4 in. inside diameter). The circumference being 3.14 times the diameter, the circumference of the 4 in. boiler tube is

4 in. × 3.14 = 12.56 in.



How much painting area is there here?

12.56 ÷ 12 = 1.05 ft.

A 10 ft. length will have

1.05 × 10 = 10.5 sq. ft. of outside surface.

Surface on a Cylindrical Tank with Bumped Heads

One final problem on surfaces. It is desired to insulate a cylindrical tank with two bumped heads. If the tank diameter is 5 ft. and the length of shell is 8 ft. as shown in Fig. 3, what is the total amount of external surface?

The shell, of course, is

5 ft. × 3.14 × 8 ft. = 125.60 sq. ft.

but the bumped heads are not so easy. It is customary to make bumped heads with the same radius as the diameter of the tank and it may be computed that, when this is done, the height of the bump will be 0.134 times the diameter, or, roughly, 1/7 of the diameter. (See Fig. 4.)

The surface of a spherical segment may be found from the formula (6) A = 2 × 3.14 × r × h

where r = radius of head in feet (or inches)

h = height of segment or "bump" in feet (or inches)

A = area of surface in sq. ft. (or sq. in.).

Substituting gives

2 × 3.14 × 5 × 5 ft. × 0.134

or

6.28 × 5 × 0.670

or

21.04 sq. ft.

This formula for this particular tankhead condition may be simplified to

$$(7)\ 6.28 \times D^2 \times 0.134$$

or

$$0.842 \times D^2$$

where D is the diameter of the tank.

Running Water in the Home

No advantage or convenience of modern civilization is equal to this one—water, delivered at convenient points in the house, at the turn of a faucet handle. Not only is it a convenience—but it is a downright necessity, as any housewife who has had a member of the family seriously ill knows. Neither proper care of the body of a sick person, nor proper care of the health of a person who is well, is possible without ample water, conveniently at hand. You will be surprised at the low cost of a water system—which may be had on easy payment terms.

(In this space Your Name, etc.)

A two-column newspaper plumbing ad

Dear Madam:

There is no good reason why the outlying home should have so few of the comforts of the city home; and there are many good reasons why the outlying home should add to its natural advantages of healthful location by having all of the conveniences made possible by running water.

That is the beginning of all comfort in the home--running water. Without it, life is apt to be difficult. Because the individual water supply system has been developed to such a degree of efficiency, and because its price is now quite within the reach of all (it may be bought on convenient terms) there is really no good reason why every farm home, or every home beyond the water mains, should not be so equipped.

The moment running water is introduced into the home, the drudgery of dish-washing, of washing clothes, or keeping the house clean, is eliminated. What is probably more important, personal health is raised because of more sanitary conditions and the ease with which a high standard of personal hygiene may be maintained.

You want running water in your home. We can give you this service at a cost and on terms which will be no hardship to you. Just telephone--a member of the firm will call on you at your convenience.

Very truly yours,

HARRY BROWN

A plumbing sales letter

The copy on these two pages is for the use of readers of DOMESTIC ENGINEERING —without charge. If you wish to use the illustrations, they are sold at $4.20 for twelve —three months' service.

If you are using any of this copy, send us samples. We like to keep in touch with what our readers are doing.

Water Carried Is Dearly Paid For

WHETHER in the permanent home beyond the water mains, or in the cottage used for the summer, running water is an absolute necessity to proper safeguard of health and to comfortable living. If you carry the water for household purposes, you pay dearly for it, in discomfort, drudgery, lack of healthful bathing facilities. And in the case of illness, the patient can not be properly cared for under such circumstances. A water supply system will cost you but little—and you can pay for it on convenient terms. Telephone, and let's talk it over.

(In this space Your Name, Etc.)

A one-column plumbing ad

SERVICE

A Place to Play —At Home

PERHAPS no need is so great for growing and grown children as an interesting place for play—at home. It tends to center their interest there, to keep them from too much running about, and it permits parents to keep a better check on the type of companions they are choosing. Such a space is made possible by the addition of automatic heating equipment which permits the creation of recreation space in the basement, because it is clean. The further advantage is that automatic heating is more economical than hand-firing. In time, the cost of the installation is saved. Telephone us—we'll send someone to talk it over with you.

(In this space Your Name, etc.)

A single-column heating ad

HOME CONDITIONS, NOT STOCK PRICES, SET STANDARDS

"You aren't hearing the kind of complaints in homes owned on a sound basis," says Harry Brown, prominent local plumbing and heating contractor, "that you hear from the fellow whose roots go no deeper than an apartment and whose surplus funds went into stocks.

"The home owner (who bought soundly) may be suffering from all the ills the rest of us are enduring. But back of him there is the hope and courage generated in the home. And that, to my way of thinking, is where the revival will commence—in the home. It is worth thinking about."

Hand this publicity item to your newspaper

Dear Madam:

It may seem strange to you that I should be writing you now about your heating plant. But there are one or two questions about heating that are pertinent right now.

Will your heating plant operate economically next winter--will it waste fuel, or conserve it? A vital question.

A heating plant is an investment, presumably in comfort. If it is properly installed it will deliver that comfort with a minimum of effort, and at a minimum of fuel consumption. So the question for the home owner is just this: Did I secure the maximum comfort with the minimum effort and expense last winter? If the answer is in the negative, then you are paying too much for uncomfortable heating conditions.

In that case, we recommend the installation, now, of one form of automatic heat or another. Whatever fuel you burn, it can be automatically fed to your heating plant so that your rooms will be maintained steadily at a comfortable temperature, avoiding constant attention to the heating plant, and eliminating those wide variations in temperature where the plant is hand-fired--variations which form the source of colds.

Telephone me for details. We can do the work now at lower cost than for many years--and if you desire you may take advantage of a convenient payment plan.

Very truly yours,
HARRY BROWN

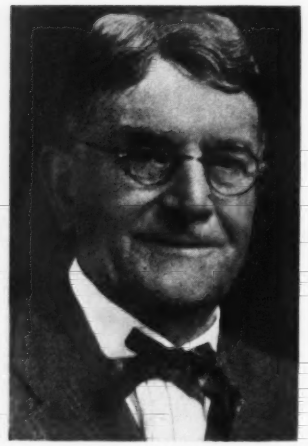
A heating sales letter

Where do Young Folks Congregate?

Have you ever noticed that there are certain homes which seem to attract the young people? Usually you will find that such homes provide interesting play space. The modern idea is to set up a heating plant—automatically operated—which makes for a clean basement and permits the building of a recreation space there. Automatic heating is possible with your present plant, whatever the fuel you use. Install it, provide recreation facilities, and make your home one of those interesting places where young people congregate. We'll be glad to advise you.

(In this space Your Name, etc.)

A two-column newspaper heating ad



James J. Lawler, Springfield, Mo., new state president

Convention delegates ask wholesalers to tighten-up on credit methods—Endorse Fair Merchandising bill—Support national bill on separation of contracts

Missouri Masters Start Work to Secure State Code

MEMBERS of the Missouri Master Plumbers Association at their annual convention in Kansas City on April 18 and 19 authorized the incoming board of directors to prepare a state plumbing code to be presented to the next session of the legislature. The state association will finance the project and it is the plan of the directors to work with the state board of health.

The delegates adopted a resolution requesting all wholesalers to put into universal practice the automatic "arrears list" and to extend credit only to those contractors who are deserving of such, so as to protect the contractor who pays his bills promptly. In this connection, a motion was passed endorsing the credit system employed by the Southwest Credit Bureau.

The convention gave its approval to the bills now before Congress pertaining to the separation of plumbing, heating and electrical contracts from the general contract on government work. The delegates also endorsed the State Fair Merchandising Bill, and expressed their appreciation of the work being done by the Plumbing and Heating Industries Bureau.

ELECT JAMES J. LAWLER PRESIDENT

James J. Lawler of Springfield was elected president of the state association for the ensuing year. Frank J. Murphy of St. Louis was elected first vice president and E. F. Spaeth of Kansas City, second vice president. John F. Corrigan of St. Louis was re-elected treasurer. President Lawler appointed C. D. Dunlap of Springfield as secretary.

President Lawler was named as delegate to the forthcoming National convention in New York City, with Frank J. Murphy as alternate.

H. J. Morrison of Poplar Bluff, president of the Missouri association during the past year, appointed the following committees to function during the meeting: Resolutions—Henry Ryffel of St. Louis, George Foley of Kansas City and F. O. Hamm of Springfield; Auditing—C. D. Dunlap of Springfield, John J. Sherin of Kansas City and S. J. Jacoby of St. Louis; Credentials—Jere Sheehan, Jr., of St. Louis, and Carl Smith of Kansas City. J. S. Leveve of Kansas City was appointed sergeant-at-arms.

An important phase of the convention was the memorial service held for the late Edwin D. Hornbrook of Kansas City, past president of the National Association of Master Plumbers and for many years an active association worker. The service was attended by the Women's Auxiliary and representatives of manufacturers and wholesalers. A picture of Mr. Hornbrook occupied the center of the rostrum. Jere Sheehan, Jr., past National president, conducted the service and eulogized the home, business and social life of Mr. Hornbrook. Mrs. Hornbrook, who was present at the service, was presented with a beautiful bouquet of flowers by the Kansas City Auxiliary.

The convention was called to order by John J. Sherin, president of the Kansas City Master Plumbers Association, who introduced State President H. J. Morrison.

Those participating in the opening ceremonies were Past National President Jere Sheehan, Jr., National Director Rupert J. Weber of Chicago; Mrs. E. D. Hornbrook, past president of the National Women's Auxiliary; Mrs. Ira Henderson, president, Missouri Women's Auxiliary; Mrs. E. F. Spaeth, state auxiliary secretary; Norman J. Radder, Plumbing and Heating Industries Bureau; William B. Talbott, of Baker Mfg. Co., past president, Central Supply Association; William J. Hebenstreit, Standard Sanitary Mfg. Co., St. Louis; Edward Graham, Crane Co.; John J. Sheehan, Standard Sanitary Mfg. Co.; Harry Ross, Ross Mfg. Co.; Albert

Group picture of delegates and guests attending the annual convention of the Missouri Master Plumbers Association, held in Kansas City

Evans, W. B. Young Supply Co.; J. A. Anderson, Crane Co.; E. B. Houser, Chandler Pump & Supply Co.; Eugene Goodson, A. Y. McDonald Mfg. Co.; Harry Curfman, Kohler Co.; Fred Burns, Kewanee Boiler Corp.; I. L. Roark and Dawson Campbell, manufacturers' agents; W. R. Weil, Revere Copper and Brass Co.; Jack Cunningham, a veteran master plumber of Kansas City; William Coakley, secretary, Kansas City Master Plumbers Association; A. O. Nobiling, Walworth Co.; and J. R. "Shorty" Lewis of DOMESTIC ENGINEERING.

Past National President Sheehan stated that the many vital problems facing the industry call for intensive constructive work on the part of everyone. He also said that the manufacturers and wholesalers are in a receptive mood to co-operate with the retail branch of the industry and the latter must not fail to do its share.

William B. Talbott stressed the need of organization, especially at the present time. He stated that the industry has an obligation to serve the public and this can best be done by the present method of distribution, manufacturer to wholesaler to retailer to public, adding that this must be continued in the future.

Raymond Brennan, an attorney of Kansas City, condemned what he termed "bootleg plumbing" and urged the members to do everything in their power to get a state plumbing code for the protection of the public and themselves.

The report of the legislative committee was presented by Fred Hamm of Joplin. He stated that new bills will be presented for a state plumbing code and to prevent merchandising by public utilities. He also read a letter from W. Scott Johnson, state health engineer, saying his department was ready to help at all times in the movement for a state plumbing code.

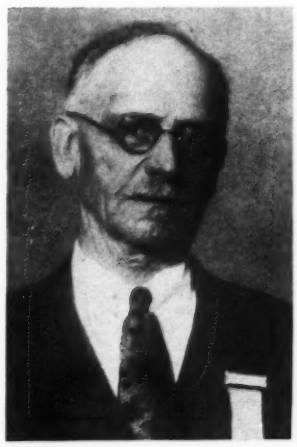
Condemning merchandising by public utilities companies, E. H. Hanser, manager, Chandler Pump & Supply Co., and president of the Fair Merchandising Association, called attention to the unfair propaganda in the newspapers. He further stated that the utility companies have a protected monopoly and that with their merchandising methods they are crowding the retail merchant out of business. He urged the plumbers in Missouri to get behind the movement for the passage of the state bill to prevent merchandising by the utility companies.

"Now, more than at any other time it is important that we stick together," said National Director R. J. Weber, Chicago, in his address.

He called attention to the stand of the National association, going on record for the continuation of the present method of distribution as the only logical one. He said that theoretically it might be all right to do away with the wholesaler, but that it is not practical.

He urged the members to support the bills now pending in Congress calling for the separation of sub-contracts from the general contract on government work.

He touched on utility merchandising and stated that the gas company in Chicago is now co-operating with the plumbers in the sale and installation of water heaters, gas boilers, etc.



H. J. Morrison, Poplar Bluff, retiring state president

URGES USE OF PRICE TAGS

Mr. Weber spoke at length on merchandising by the plumber and advocated the use of price tags. He explained how the merchandising plumbers in Chicago were operating. He advised making the store and window attractive to prospective customers. "Make your place of business a store, not a shop," said Mr. Weber.

Norman J. Radder of the Plumbing and Heating Industries Bureau gave an interesting talk on the various helps to be obtained by the contractor from the Bureau.

The official reports of the president, secretary and treasurer were presented and received.

W. C. Green, manager, Southwest Credit Bureau, spoke on "Credits," and explained the automatic arrears list which is to be put into effect shortly.

Charles B. Shaeffer, president, Bunting Hardware Co., and T. J. Smith, publicity manager, Fair Merchandising Association, described the Anti-Utility Merchandising bill.

A letter was read from P. W. Donoghue of Boston, National president, explaining the National association's stand in opposing direct sales by wholesalers to the public. (This appeared in full on Page 36 of our April 16 issue.)

The annual banquet and dance was held on Monday evening in the Muehlebach Hotel, Jere Sheehan, Jr., acted as toastmaster. Those who spoke were John Sherin and Charles Burgess, president of the Kansas City and St. Louis associations, respectively; R. J. Weber, John Corrigan, Mrs. E. D. Hornbrook and Don Holt, a former National director.

R. M. Sherman

Morgan J. Hammers

R. S. Bohn

J. H. Hirsch

Plan Sales Drive as Oil Burner Men Meet

Haldeman Finnie

A NEW national significance was given the oil burner industry as a result of the ninth annual oil burner convention and show, conducted by the American Oil Burner Association, closed in Boston on April 16 after a week that established new attendance records for the show and a record breaking registration insofar as the industry itself was concerned.

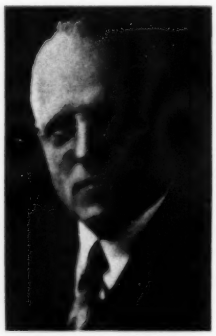
Running through all of the addresses was a note of optimism together with the admonition that hard work and an understanding of the complete markets available would mean more than an ordinary measure of prosperity for the industry. The immediate and potential market was clearly visualized for the delegates by R. B. Wilson of Babson's Statistical Organization, who said there was an immediate market in 3,000,000 homes and that the industry could count on a normal expansion in

Robert Hoffman

W. J. Smith

George Steele

J. A. Lattner



Walter F. Tant

John W. Scott

demand for burners of at least 200,000 homes a year.

Morgan J. Hammers, vice president and general manager of the Petroleum Heat and Power Co., Stamford, Conn., was elected president of the association, succeeding Walter F. Tant. The executive committee elected includes Morgan J. Hammers, Haldeman Finnie of the Timken Silent Automatic Co., Detroit, Mich.; E. M. Fleischmann of the May Oil Burner Corp., Baltimore, Md.; W. J. Smith of the Cleveland Steel Products Corp., Cleveland, Ohio, and R. M. Sherman of the Silent Glow Oil Burner Corp., Hartford, Conn. Of the foregoing the following were named vice presidents of the association: Messrs. Finnie, Smith and Sherman. R. S. Bohn of the Preferred Utilities Mfg. Co. of New York, who was named chairman of the dealer division succeeding Lionel L. Jacobs, also was named vice president, as was J. H. Hirsch of the Automatic Burner Corp., Chicago, Ill.

To fill vacancies on the board of directors from the manufacturers' division the following two men were elected: Robert Hoffman, president of the York Oil Burner Co. of York, Pa., and J. A. Lattner, secretary-treasurer of the Century Engineering Corp. of Cedar Rapids, Ia. To fill vacancies from the dealer division the following were elected to the directorate: George Steele, Automatic Utilities, Inc., of Bogota, N. J., and John W. Scott, Buckley and Scott Utilities Company.

Among those who spoke during the course of the week's business sessions were Ralph B. Wilson, vice president of Babson's Statistical Organization; Katharine A. Fisher, director of the Good Housekeeping Institute; R. M. Sherman, president of the Silent Glow Oil Burner Corp.; W. S. Goodwin, New York sales consultant; E. V. Walsh, general sales manager of the Timken Silent Automatic Co.; B. K. Breed, commercial and industrial sales engineer of the Preferred Utilities Co.; Walter F. Tant; Rudolph Neuburger, merchandising consultant of the Zapon Co.; C. F. Cornelsse, manager retail division, May Oil Burner Corp.; John H. McIlvaine, president of the McIlvaine Burner Corp.; Joseph R. Murphy, general sales manager of the Taco Heaters, Inc.; Vincent S. Day, chief engineer, Carrier-Lyle Corp.; R. G. Bookhout, editor, Plumbing and Heating Contractors Trade Journal; Robert Tinsman, president, Federal Advertising Agency, and Professor L. E. Seeley of Mason Laboratory, Sheffield Scientific School, Yale University.

The directorate took a vigorous stand against federal extravagance and demanded that there be every effort in Washington to cut down expenditures. In dealing with this aspect of its business the board reaffirmed its vigorous objections to the excise oil tax.

The board also received a program of trade practices for the industry and set up an advertising code whose purpose is "to raise the standard of advertising through the elimination of unethical and disparaging copy" and through positive statements rather than negative, "to sell the industry as a stable, responsible, fully established industry." Mr. Tant in his annual report to the board revealed the activities of the association during the past year and reported that the dealer division membership increased from 144 to 2,383 members and that the individual membership had increased from 9 to 49 members.

Arkansas Plumbers Endorse "Separation of Contracts" Bill

OPTIMISM prevailed at the tenth annual convention of the Arkansas Master Plumbers Association, held at Little Rock, Ark., April 11 and 12. It was without doubt the best convention of the association, well attended and full of enthusiasm.

Resolutions were passed endorsing the efforts of the National Association of Master Plumbers to obtain the passage of legislation by Congress calling for the separation of contracts and the naming of sub-contractors by general contractors on government building projects.

Another resolution requested the National Association to endeavor to have the sale of air conditioning units and their installation kept in the hands of plumbing and heating contractors.

Still another resolution to be presented to the National Association requests that the proper United States Government officials be asked to give a ruling

Arthur F. Pfeifer of Little Rock, newly elected state president, and Walter S. Duggans of Fayetteville, state vice president

on the interpretation of the phrase, "the prevailing rate of wages," applying to government work, so as to eliminate any misunderstanding of the term.

Arthur F. Pfeifer of Little Rock and Walter S. Duggans of Fayetteville were elected to guide the association during the coming year, as president and vice president, respectively. Joe H. Bilheimer, Jr., of Little Rock, and Al Borman of Hot Springs, were re-elected secretary and treasurer, respectively. The following directors were elected: J. K. Lecroy of Hot Springs, B. W. Locke of Pine Bluff, Percy A. Shaw of Little Rock and C. R. Jones of Siloam Springs.

President C. R. Jones opened the convention by introducing D. Hodson Lewis, secretary, Chamber of Commerce, who welcomed the visitors to the city. Mr. Lewis explained the survey conducted in Little Rock to determine the repair work needed on old homes in that city. He praised the local master plumbers' association for its co-operation in the ef-

fort. Incidentally, the Little Rock Master Plumbers Association is using the DOMESTIC ENGINEERING "Spend for the Home in 1932" material in conjunction with this campaign.

Left to right: J. H. Bilheimer, Little Rock, re-elected state secretary; C. R. Jones, Siloam Springs, retiring state president; C. L. Jones, Little Rock; and H. S. Lazarus, Camden, Ark.

Secretary Bilheimer read a letter from the National association outlining the work that is being done by that body to improve the industry.

President Jones appointed the following committees to function during the convention:

Resolutions: J. K. Lecroy of Hot Springs, Percy A. Shaw of Little Rock, Al Borman of Hot Springs, E. D. Wakenight of Searcy, and Walter Duggans of Fayetteville; and H. O. Green of Tulsa, Okla., as ex-officio member.

Legislation: C. L. Jones of Little Rock, H. S. Lazarus of Camden, G. W. Shirley of Van Buren and Joe H. Bilheimer, Jr., of Little Rock.

Nominating: G. W. Shirley of Van Buren, H. S. Lazarus of Camden and C. L. Jones of Little Rock.

The question arose as to the proper outlet for air conditioning and the fact was brought out that some manufacturers seemed to be overlooking the plumbing and heating dealer in the sale of their units. President Jones urged the members to read the business papers of the industry so as to be fully informed on air conditioning, stating that it will be an important part of the business. He remarked that DOMESTIC ENGINEERING is publishing much helpful material on this subject.

Vice President Arthur Pfeifer stated that the members should study the question thoroughly so as to be fully prepared to handle air conditioning installations.

J. R. "Shorty" Lewis of DOMESTIC ENGINEERING was extended the floor and told of the new paper his company will publish shortly, to be called "Domestic Air Conditioning," which will deal with every phase of air conditioning work.

W. M. Johnson, a feature writer of the Arkansas Democrat, gave an interesting talk on "The Relation of the Building Industry to Prosperity." He stated that the building industry will play a large part in the return of prosperity and added that modernization of old homes is a field that will enable the industry to make a come back while waiting for new building to return to normalcy.

He stated that in every city or town where an organized movement in the modernization of homes was made it has proven a success.

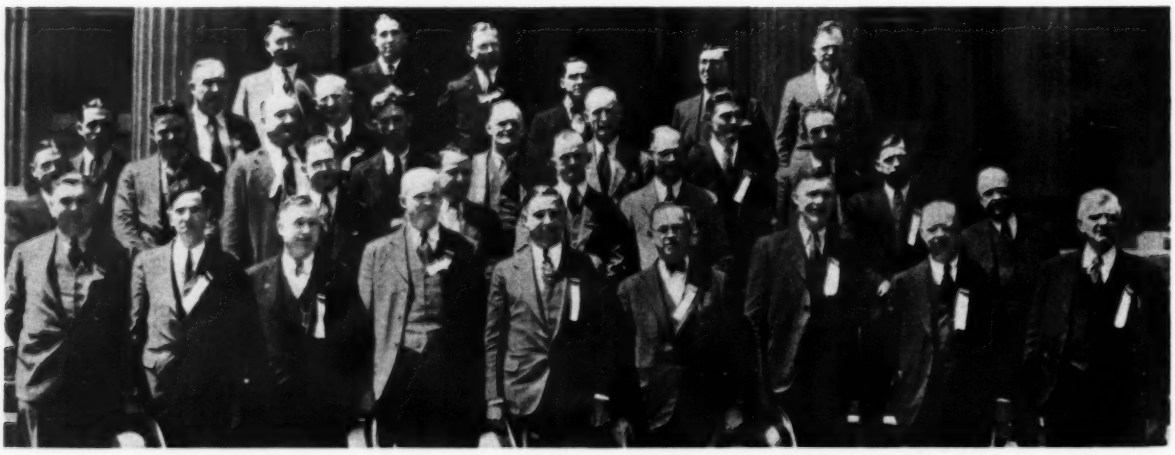
President Jones in his annual report told of the zone meetings at Fayetteville and Fort Smith. He advocated lower costs to the consumer by the industry, and urged lower labor costs. We have direct-to-you competition and we must prepare ourselves to meet it or lose our business, Mr. Jones said. We must increase our efficiency and reduce our costs.

Bid peddling by general contractors was condemned by C. L. Jones of Little Rock and he advocated that the plumbing and heating contractors refrain from bidding through the general contractor.

G. W. Shirley of Van Buren, told of the co-operative advertising being done by the master plumbers in Fort Smith and Van Buren in which they advertised special bathroom outfits at a price in competition with prices of direct-to-you and chain stores.

Touching on the various activities of the National association and praising the work of National President P. W. Donoghue, National Treasurer H. O. Green of Tulsa, Okla., emphasized the need for better organization in the industry.

The legislative committee reported that action for a state code will be held up until such time as the committee of the National association for the formation of a national code renders its report.



Delegates and guests attending the annual convention of the Arkansas Master Plumbers Association at Little Rock, Ark.

MARKETS

BUSINESS REPORTS FROM LARGE JOBBING CENTERS

REPORTING a construction contract volume of $286,078,700 for the first quarter of 1932 in the thirty-seven states east of the Rockies, F. W. Dodge Corporation foresees a second quarter gain over this of from five to fifteen per cent in general construction. Expectations are that residential building will show a gain which will range from ten to twenty per cent over the figures for the first quarter.

The continued dullness in the new construction field finds plumbing and heating contractors, for the most part, depending on alterations and repair work to maintain their volumes. It is not to be expected that repair work alone could make the volume of plumbing and heating supply sales even approach that of a normal building year. "Repair work has helped, however, to keep shipments of enameled sanitary ware and vitreous chinaware at a fairly high level during 1931, and during the first quarter of 1932 at slightly above the comparative record of a year ago," according to a special survey prepared by the research department of R. G. Dun & Co. "It is offering the most fertile field for the next few months, or at least until easier money conditions will have enabled bankers to finance some of the projects which so long have been held in abeyance.

"During the first quarter of the current year," the survey continues, "there was a slight improvement in the general demand for supplies. This centered chiefly around materials for small homes and residences and bathroom fixtures and kitchen necessities for remodeling work on rental property. Replacements for office buildings and industrial property have moved moderately well, but much work in this line is being deferred. The mild temperatures of the past Winter made it difficult for sales of heating equipment to show much improvement."

Construction undertakings during March showed an expansion of about twenty-six per cent as compared with February, the Dodge corporation points out in its review. The value of March contracts, however, was only about thirty per cent of that reported for March, 1931. Of the total of $112,234,500 in new awards reported during the month in the thirty-seven states east of the Rockies, $33,208,600 was in residential building; $49,172,400 was in non-residential building; and $29,853,500 was in public works and utilities.

Territorial showings in new March contracts once again place the Middle Atlantic territory ahead of the Metropolitan New York area with $20,902,600 as the Middle Atlantic total, comparing with $16,840,300 in Metropolitan New York. The Pittsburgh district was next in line with its total of $11,831,900; and New England was fourth in order with $10,071,400 reported during the month.

March wholesale prices of six standard plumbing fixtures for a six-room house, ascertained by the Bureau of the Census from reports of *8 manufacturers and wholesalers, averaged $84.37, as compared with $88.42 in February, $97.86 in March, 1931, and $104.51 in March, 1930. These prices are net to retailer without freight. (*Two of the 10 establishments which reported for February have gone out of business.)

February shipments of plumbers' woodwork, as reported to the Bureau of the Census by 19 manufacturers, were 78,334 pieces, as compared with 93,431 pieces in January and 119,725 in February, 1931. Total shipments for the first two months of 1932 were 171,765 pieces, as compared with 232,893 pieces in the corresponding two months of 1931.

February shipments of oil burners, based on data reported to the Bureau of the Census by 103 manufacturers, were 3,368 units, as compared with 3,643 units in January and 3,531 in February, 1931. Total shipments for the first two months of 1932 amounted to 7,011 units, as compared with 7,577 units in the corresponding two months of 1931, and 9,869 in the corresponding period of 1930.

SUPPLY NEWS

FOR MANUFACTURERS, WHOLESALERS, SALESMEN

Convention of National Pipe & Supplies Association Is Postponed

The National Pipe and Supplies Association, upon the recommendation of its executive committee and following a referendum vote of the association, has postponed until a later date its annual convention, which was scheduled to be held at Pittsburgh on May 9, 10 and 11. Announcement of the postponement was made by J. J. McArdle of McArdle & Cooney, Inc., Philadelphia, Pa., president of the association.

With the expected improvement in business condition by the Fall, it is planned to hold the convention at that time.

In place of the convention in May, group meetings will be held in the larger cities throughout the country. The first of these meetings was held several days ago in Baltimore, Md.

Chicago Wholesale Firm Moves to New Quarters

Pincus & Schulhof, plumbing and heating wholesale firm of Chicago, Ill., has moved into new quarters at 2820 North Paulina street, in that city. The new, modern quarters provide the company with increased office and warehouse space. Members of the trade in the Chicago territory have been invited to attend the formal opening of the new place of business on Saturday, April 30.

American Manganese Bronze Co. Expands

American Manganese Bronze Co., Holmesburg, Philadelphia, Pa., has acquired all property, excepting real estate, of Paul S. Reeves & Co., 1415 Catharine street, operating a metal and smelting works, and Caskey Brass & Bronze Works, Inc., Richmond and York streets, manufacturer of brass, bronze and other metal products. The acquired companies are being removed to the Holmesburg plant, where production will be concentrated.

Wholesaler Moves to New Quarters

The Southern States Supply Co., plumbing and heating wholesale concern of Columbia, S. C., recently moved its headquarters from 1319½ Main street to 1316 Sumter street. The new quarters provide the company with increased space and improved showroom facilities. B. M. Lemmond, who is president of the company, has been associated with the firm many years.

National Sales Drive Is Successful

Equipment of interest to the plumbing and heating dealer was shown in the exhibits just held by the General Motors Corporation in 55 key cities of the country. These displays included air conditioning and home appliance equipment made by the Frigidaire Corporation and by other subsidiaries of General Motors.

This plan of national exhibits was taken not only to secure orders but to demonstrate to American business men the confidence of the automobile companies that business is improving and that sales effort and energy will hasten that improvement. Results of the week's sales drive, as officially reported by General Motors officers, were distinctly encouraging in the amount of business secured.

McCabe Supply Co., Inc., Moves to New Quarters

The McCabe Supply Co., Inc., plumbing and heating wholesale firm of New York City, is moving into new quarters on May 1. The new home of the company will be located at 215 Seventh avenue, near Twenty-third street. The company was formerly located at 192 Seventh avenue.

Cleveland Heater Co. Plans Addition to Plant

The Cleveland Heater Co., Cleveland, Ohio, has plans for a one-story addition to its plant, 100x239 ft. L. R. Mendelson is president of the company.

Erie, Pa., Wholesaler in New Quarters

The National Supply Co., plumbing and heating wholesale firm of Erie, Pa., has moved to more modern and commodious quarters at 1234 Poplar street, in that city. The company was formerly located at 1608 State street.

Will Manufacture Concealed Radiation

John W. Tambert, former secretary and treasurer of the Perfex Corp., Milwaukee, Wis., has been placed in charge of the heating division of the corporation, which department has been expanded considerably in the past few months. The corporation's heating line has been enlarged to include concealed radiation. It is reported that plans are underway to further expand its line of heating products. F. A. Tetzlaff has been elected secretary-treasurer of the corporation, succeeding Mr. Tambert.

Milwaukee Maker of Plumbing Supplies Changes Hands

H. A. Schauer has purchased the manufacturing division of the B. Hoffmann Mfg. Co., 1819 West St. Paul avenue, Milwaukee, Wis., and will continue the business as the Hasco Valve & Machine Co., at the above address. The B. Hoffmann Mfg. Co. will continue in business as wholesalers of plumbing and heating supplies.

In addition to manufacturing valves and fittings for power plants, paper mills and for the chemical industry, the Hasco company's line is being extended to include the dairy industry, featuring chrome alloy steel valves for corrosion-resisting purposes.

New York Wholesaler Moves

Samuel R. Kahn, wholesaler of plumbing supplies, New York City, has moved his place of business from 32 West 46th street, to 534 West 36th street. This move joins the office of this wholesaler with his warehouse.

Will Represent Florence Stove Co. in Connecticut

The Florence Stove Co., of Gardner, Mass., manufacturer of oil ranges, space heaters, range burners, gas ranges and electric ranges, has appointed Shafer Greenburg as its sales representative in the state of Connecticut.

Mr. Greenburg, who has had a wide experience with oil-burning equipment, was formerly Mid-West sales manager for the Bunsen Oil Burner Corp.; New England representative for Wayne Home Equipment Co.; New England representative for Hart-Parr Co.; and division manager for Landers, Frary & Clark.

Will Manufacture in Canada

The Carrier Engineering Corp., Newark, N. J., has completed arrangements to manufacture equipment for its Canadian market in the plant of the Canadian Blower & Forge Co., at Kitchener, Ontario. The Carrier corporation recently secured the contract for six centrifugal refrigerating machines and six air conditioning plants for two buildings for Rockefeller Centre (Radio City), New York City.

American Brass Co. Re-elects Officers

All officers and directors of the American Brass Co., Waterbury, Conn., were re-elected at the annual meeting of the stockholders and directors. The directors are: John D. Ryan, Cornellius F. Kelly, John A. Coe, Benjamin B. Thayer, Clifford F. Hollister, Clarke S. Judd, and Franklin E. Weaver. Messrs. Ryan, Kelly and Thayer are officials of the Anaconda Mining Co., the parent organization.

Brass Goods Maker Appoints New Representative

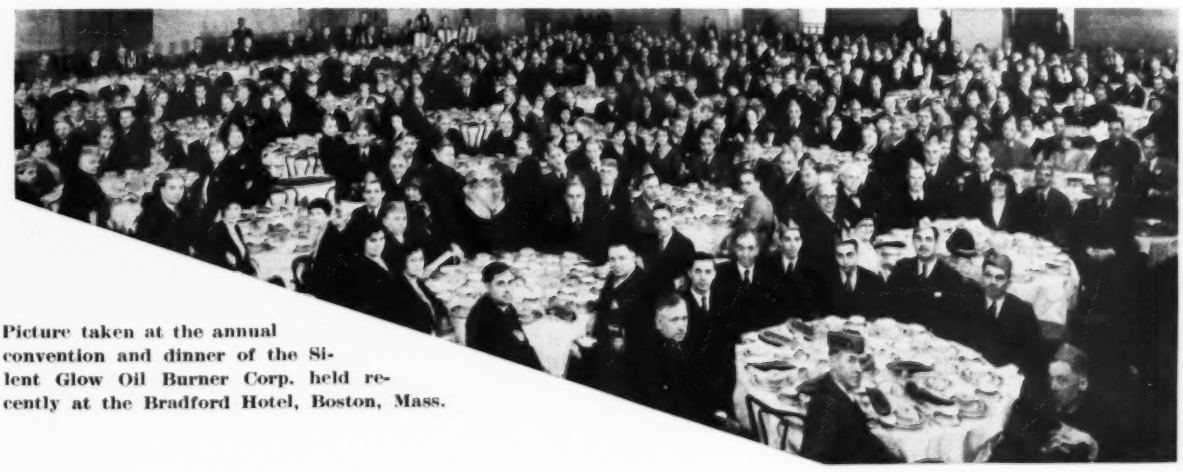
Phoenix Brass Fittings Corp., Irvington, N. J., has appointed the James K. Wadick Co. of 1401 Whitney Bank building, New Orleans, La., as its representative in Louisiana, Mississippi, and the southeastern part of Texas.

Silent Glow Oil Burner Corp.'s Dealers Hold Annual Convention

The Silent Glow Oil Burner Corp., of Hartford, Conn., held its annual banquet and convention in Boston, Mass., on April 15, during the week of the annual convention and exposition of the American Oil Burner Association. The meeting was held at the Hotel Bradford, and was attended by 450 of the corporation's dealers from all sections of the United States and Canada.

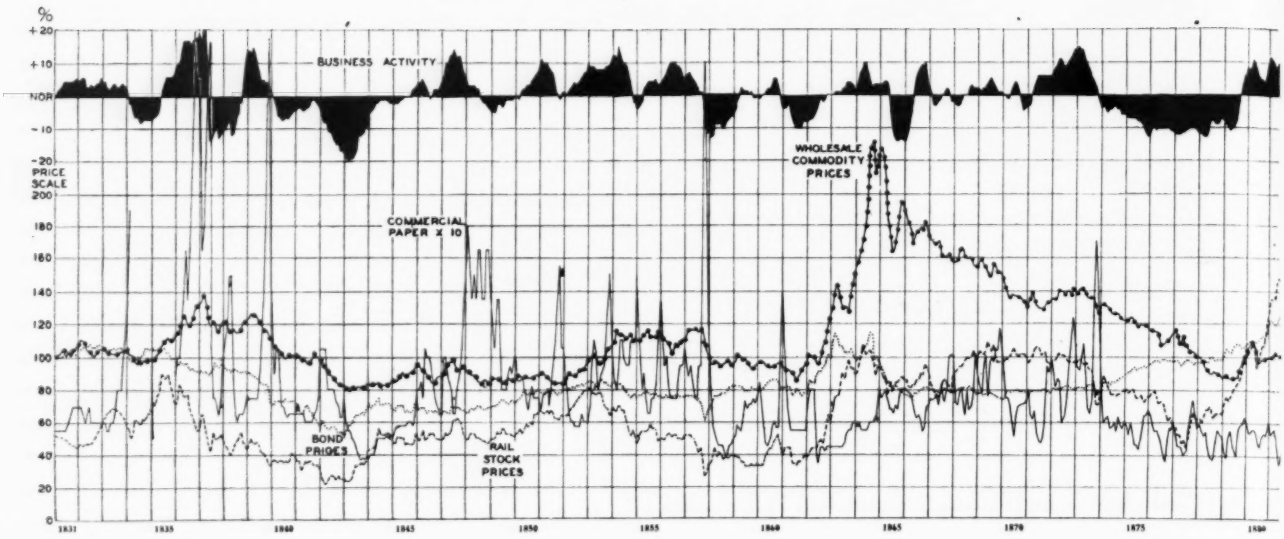
F. W. Chamberlin, manager of the concern's Boston branch, served as toastmaster at the banquet and introduced the various officers. Rallston M. Sherman, president of the corporation, outlined the organization's plans for the future and emphasized the tremendous opportunities that today's market holds for the oil burner industry. He told how an ordinance had been passed in Hartford regulating the installation of oil burners. Mr. Sherman also presented to the dealer organization new additions to the concern's line of products.

Paul Deluhunty, sales and promotion manager, described what the corporation is doing in an advertising way and told how this is helping the dealers in their selling work. C. B. Cook, vice president, spoke on the firm's policies and reviewed its progress. William Kemp, manager of the Mid-West Oil Burner Mfg. Co., a division of Silent Glow Oil Burner Corp., told what the acquisition of this firm by Silent Glow means to the dealers.



Picture taken at the annual convention and dinner of the Silent Glow Oil Burner Corp. held recently at the Bradford Hotel, Boston, Mass.

100 Year Chart Shows Buyers Now H



A BUSINESS chart in slack times is usually looked at from the wrong standpoint. The line of activity may be low, but actually that means greater opportunity for the buyer to purchase at bargain prices, which means large future profits. From this viewpoint, the above interesting chart shows that purchasers for building and home construction have an opportunity for sound buying today which may never be duplicated.

The chart, which was prepared by Col. Leonard P. Ayres of the Cleveland Trust Co., shows clearly the course of business activity in this country during the past 100 years, as well as the trend of rail bond prices, wholesale prices, rail stock prices and commercial paper.

"There is a striking relationship between the abruptness with which a depression begins, and the manner in which it ends," says the New York World-Telegram in commenting on the graph. "The sharper the drop, the more abrupt is the recovery—a fact which leads us to believe that our present sharp depression will end very abruptly and the return to normal will be extremely rapid."

This newspaper goes on to point out to its readers that now is the time to build when the building dollar is worth $1.96. "Only once or twice in a whole lifetime," the advertisement points out, "does opportunity to build at such phenomenally low prices as prevail today present itself."

This same appreciation of how to use today's conditions is shown by many contractors in the plumbing and heating industry who are taking advantage of present construction costs to strongly emphasize this fact in connection with their aggressive sales work. The results the dealers are getting is attested by their continued sales effort.

In recent issues of DOMESTIC ENGINEERING, we have told how these plumbing and heating contractors in various sections of the country are successfully securing business as a result of telling the story of the lower prices on labor and materials. As another example, the Speakman Co., in connection with its wholesale supply house in Wilmington, Del., recently ran a series of advertisements in two local newspapers calling the attention of the public to the low building costs. The advertisements contained figures showing that a house which in 1929 cost $10,722.69, now can be built for $7,720.64, which represents a saving of $3,002.05, or 28 per cent.

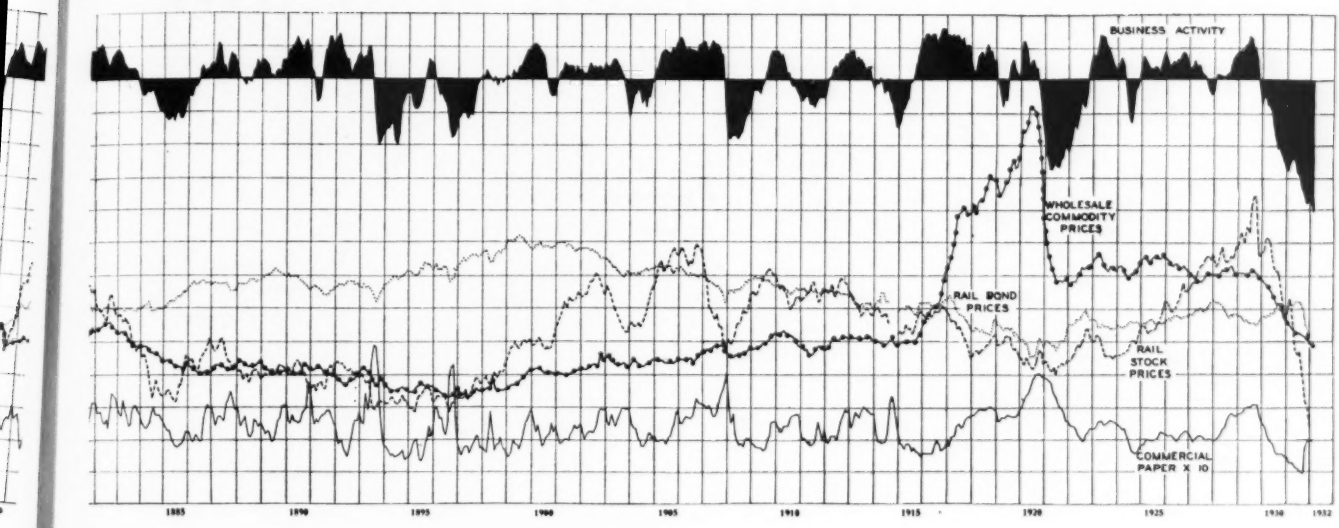
The index of business activity is reproduced on the chart from the diagram publication of The Cleveland Trust Company issued in February, 1932, which carries the data from 1790.

The bond price data are the yields of high grade bonds capitalized at five per cent. For the years 1857 to date the yields are those of high grade American railroad bonds as compiled by Dr. Fred R. Macaulay of the

Reprints of Charts Are Available

Readers of DOMESTIC ENGINEERING may obtain enlarged copies of the above chart for 10 cents each. We suggest placing your order early as previously when a similar offer was made for charts of this type the demand exceeded the supply. The enlargements contain, in addition, valuable tabulations of prices. Enclose stamps with your order

w Have Best Opportunity in Century



National Bureau of Economic Research, New York City. The yields used from 1831 through 1856 are current yields of state and municipal issues. The data were compiled by this institution from rather fragmentary figures found in the periodical files of the Library of Congress. The index is composed of seven bonds from 1831 through 1840, and of 11 bonds from 1841 through 1856. This index was adjusted to connect with the railroad index in 1857.

The index of wholesale commodity prices is the compilation of Professors G. F. Warren and F. A. Pearson of Cornell University. The average of the data for the five years from 1910 through 1914 is taken as equal to 100.

The railroad stock price index is composed of several series. Canal stock prices were used for the period 1831 through 1833. From 1834 through 1879 the index is based on three Harvard series. The one from 1834 through 1852 includes eight stocks, and that from 1853 through 1865 includes 18. The data are from The Review of Economic Statistics for August, 1928. The index from 1866 through 1879 includes 10 stocks, and the data are from The Review of Economic Statistics for 1919. The index from 1880 through 1896 includes 10 stocks, and from 1897 to date it includes 15. These two latter indexes were compiled by this bank. All the earlier indexes were adjusted to form a continuous series terminating with the final index of 15 stocks.

The commercial paper rate data for the years 1831 through 1860 are taken from "The Tariff Question" by Erastus B. Bigelow (Boston 1862). The source of the figures for the years 1861 through 1865 is Joseph G. Martin's "Seventy-three Years' History of the Boston Stock Market" (Boston 1871). The data from 1866 through 1913 are from The Review of Economic Statistics, January, 1923, and those from 1914 to date are compilations of the Standard Statistics Company as published in their Statistical Bulletin Base Book.

Business Personals

R. H. Van Buren, manager, Morency-VanBuren Mfg. Co. of Sturgis, Mich., a division of Scovill Mfg. Co., Waterbury, Conn., has been elected a delegate from Michigan to the forthcoming Republican National Convention in Chicago.

Hugo C. Schwan, manufacturers' representative of Detroit, Mich., has moved his office to the Donovan building, 2457 Woodward avenue, in that city.

O. B. Craig, who has been associated with the Bailey-Farrell Mfg. Co. at Pittsburgh, Pa., for the past thirty years as architect man and advertising manager, is retiring and will leave for California about May 1. He will locate in Los Angeles.

William McVicker, manager of the New York office of United States Sanitary Mfg. Co., Pittsburgh, will also include in his territory the entire New England states. This new arrangement is effective immediately.

J. D. Duncun, formerly of the New York office of the Carrier Engineering Corp., Newark, N. J., is now in charge of the Australian office for this firm and is located in Sydney, Australia.

David K. E. Bruce has been named a director of the Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa. There were two vacancies on the board due to deaths. Other directors were re-elected.

Death of James Kernan, Sr.

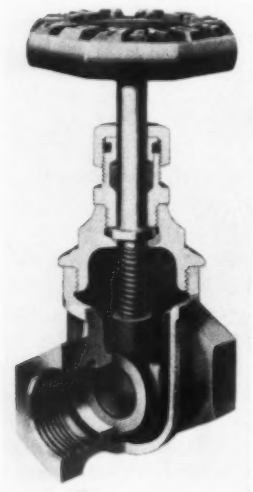
James Kernan, Sr., a former assistant secretary and treasurer of the Bethlehem Steel Co., Bethlehem, Pa., died at Bethlehem April 15. A native of Geneseo, N. Y., he served the Bethlehem company for 38 years until his retirement. Mr. Kernan was in his 79th year at the time of his death.

ITEMS FOR STORE, SHOP AND JOB

Heating contractors who attended the American Oil Burner Association Convention and Exposition, held last week at Boston, witnessed a very elaborate exhibition of progress in the field of oil burning. Readers of DOMESTIC ENGINEERING, whether they attended the event or not, are given in these columns items covering the development in the entire field of plumbing and heating, including oil burning. Profit from this bi-weekly assembly of items for your store, shop and job as you would if you should see them at a convention.

Improvement in Gate Valve Announced

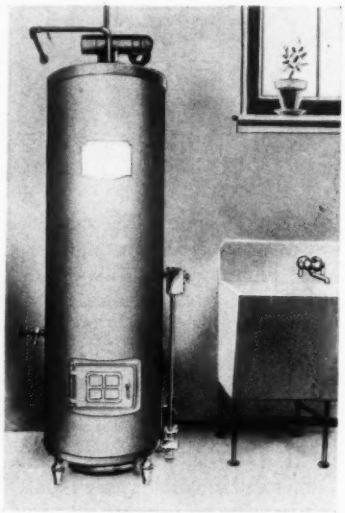
The accompanying illustration shows a gate valve which just recently has been placed on the market as a redesign of an older model. It is of the solid wedge stationary stem type and is made for steam pressures of 125 lb. and water pressures of 175 lb. One of the features listed as being outstanding is the bonnet hex, which is described as being extra large and placed close to the hub face where it screws into the body. The construction has been designed to make the valve rigid and to assist in the removal of the bonnet where clearances are close. Another feature listed is the depth to which the stem engages with the disc, the idea being to provide a large number of contact threads and reduce the possibility of stripping. The stuffing box is provided with a gland on all sizes and the packing rings are of the molded square section type.



The item is made by the Kennedy Valve Manufacturing Company, which is located at Elmira, New York.

Automatic Water Heater for Use with Oil

An announcement has been made of an automatic oil burning domestic water heater which has just been placed on the market. The accompanying illustration



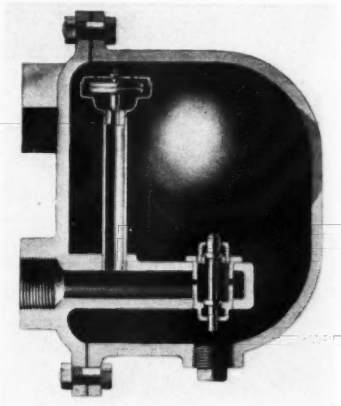
shows the item installed. It is listed as being an improvement of an older piece of equipment. The manufacturer is Automatic Burner Corporation of Chicago.

Float and Thermostatic Trap for Heavy Duty

A float and thermostatic trap, designed for heavy duty, has just been placed on the market. It is for use with blast coils, hot water generators and the like. Listed as being most outstanding is the high capacity in proportion to compactness and light weight. A quick continuous discharge of air and large quantities of condensate is said to make this possible. A balanced, double-seated valve construction permits the use of a direct-acting float. A deep water seal is maintained over the ports to

Readers will find in this department news of our industry's progress in the manufacture of equipment. You can read of the efforts of manufacturers to develop products which will increase customer demand, will make shop methods more efficient and will simplify installation.

prevent the loss of steam into the return. The double valve is assembled into a single unit to facilitate the removal and cleaning of it. To minimize the amount of cleaning necessary, the ports have been located above

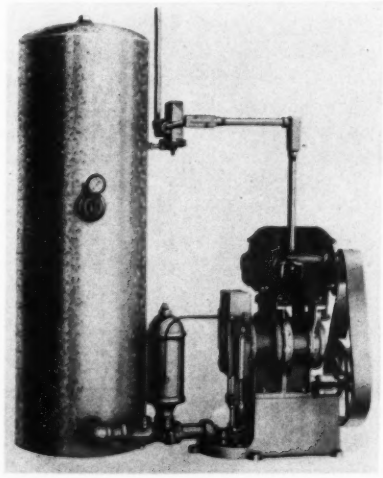


the bottom of the body, thus allowing a considerable amount of dirt to accumulate before the ports are reached. The valves also close against sharp-edged seats. It has been designed so that all initial and entrained air is discharged through a by-pass controlled by a thermostatic member located above the water line. The removal of the body casting exposes all of the working parts without touching the pipe connections. Standard sizes are 1 in., 1¼ in., 1½ in. and 2 in.

The Hoffman Specialty Co., Inc., of Waterbury, Conn., is the manufacturer.

A Deep Well Pump for Household Service

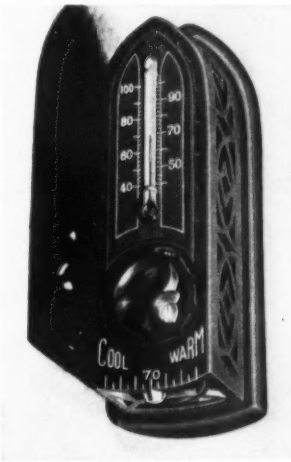
Recent improvements in a deep well pump consist of changes designed to eliminate the dripping of oil down



the plunger line and into the water line when the packing in the plunger rod becomes worn. Also, V-belt drives or chain drives have been made available with the unit as well as the flat belt drive of the old models. Some of the general features of the unit are that a straight line motion is produced within the head; it is designed to run equally well in either direction; it is adaptable to double acting cylinders without any changes or additional parts and the discharge can be swung in any one of three directions. It is manufactured by Red Jacket Mfg. Co. of Davenport, Iowa.

A Room Thermostat Designed For Beauty

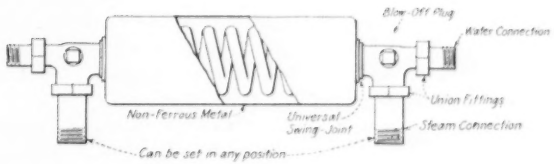
Concurrent with this announcement is the appearance on the market of a room temperature control which has been designed to be very small in size and beautiful in



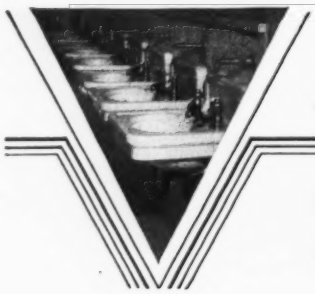
form. The case is made of cast bakelite and is 4¾ in. in height. It is designed to handle high or low voltages with intermittent or continuous ignition. Penn Electric Switch Co. of Des Moines, Iowa, is the manufacturer.

An Indirect Water Heater Made of Copper

An announcement has been made of a new indirect water heater which is made of copper. The shell, with heads and fittings, are tested at 150 lb. per sq. in. pressure. The coil connected with the pressure water system is tested at 1,200 lb. The heater comes in various



sizes and capacities and is suitable for use in residences, apartments, hotels, schools or industrial plants. The heater has been designed so that where unusual high pressure steam conditions are encountered it can be used in reverse. That is, steam can be passed through the coil instead of through the jacket. It is manufactured by Erskine Copper Radiator Corp., New York City.



ANSWERED

QUESTIONS FROM OUR READERS AND ANSWERS BY OUR ENGINEERS

About the Depth of Seal in Traps

TO THE EDITOR:

Please answer the following question: Is it the amount of water in the trap or the depth of seal that offers the most resistance to siphonage?

Illinois. W. J. M.

TO THE READER:

The two chief enemies against the seal of a trap are siphonage and back pressure.

In general it may be said that it is depth of seal that offers most resistance to back pressure, and increased amount of water in the trap offers most resistance to siphonage, but the latter part of this statement needs further explanation.

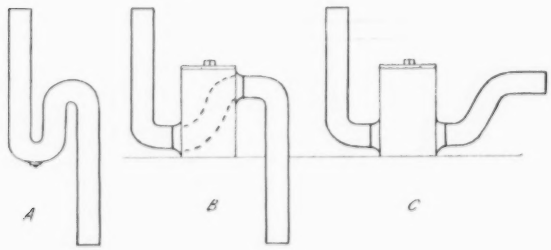


Fig. 1

Of the three traps shown in our illustration, the S-trap will siphon most readily. Any one having experience will agree on the other hand, that a drum trap, shown by B and C, will withstand siphonage to such an extent that it is considered practically a non-siphon trap. As a matter of fact, non-siphon traps invariably have a body of larger dimension than their connections.

In the case of the S-trap or the P-trap, there is no reserve body of water as in the drum trap, and it is this reserve that prevents siphonage.

In the case of B or of C, whenever siphonage starts there will be a sufficient volume of water left when this influence comes to an end, to preserve the seal of the trap.

In the case of such a trap as the S- or P-trap, there is no reserve, and consequently its seal is much more readily broken.

In guarding against trap siphonage it is good practice to have the tail piece of the fixture a size smaller than the waste pipe. The reason that this is a protection to the trap seal is practically the same as the reason why the enlarged trap body is a protection.

It may be well to point out that the character of the fixture enters into the subject of trap siphonage also. Flat bottom fixtures such as bathtubs, kitchen sinks and laundry tubs at the end of their discharge have what is called a trailing discharge, and this will almost always act as a reserve, to prevent loss of seal. Fixtures such as lavatories do not present this same advantageous feature.

A Domestic Hot Water Supply Problem

TO THE EDITOR:

Enclosed you will find a sketch, Fig. 1, of a range boiler heated by a coil in a furnace and circulating hot water to a bathroom and kitchen sink, the cold water supply being on tank pressure from the tank indicated. You will note that I have connected the hot water return to a horizontal pipe from the other end of which I am taking the coil supply and have connected the outlet of the coil with the hot water line leading out of the top of the boiler with a "quick heating" connection. Can you tell me how this would be liable to work?

Michigan. E. W.

TO THE READER:

There is nothing essentially wrong with our correspondent's sketch although there may be one or two suggestions that would improve the arrangement which we will offer for what they are worth. In the first place it is not clearly indicated whether or not the bathroom is

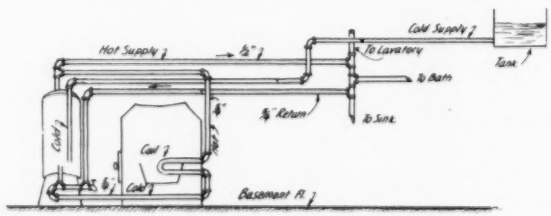
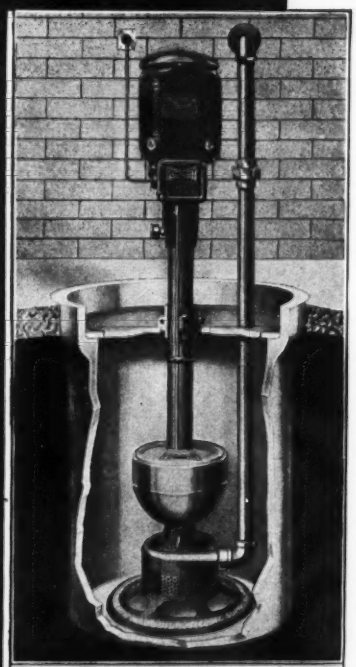


Fig. 1

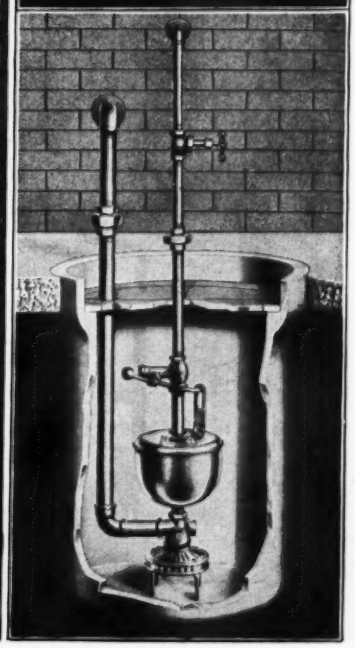
on the second floor so that some head would exist to circulate the hot water supply and return lines. Inasmuch as there is a house tank indicated it is probable that the residence is of sufficient size to have a second floor with the bathroom at that level and, if this is true,

RUST PROOF

COPPER AND BRONZE THROUGHOUT



PENBERTHY AUTOMATIC ELECTRIC SUMP PUMP



PENBERTHY AUTOMATIC CELLAR DRAINER (Water Operated)

PENBERTHY PRODUCTS

THE plumbing contractor need not be told the many advantages of using copper and bronze in the construction of equipment for the removal of seepage water from basements, elevator sumps, scale pits, piping tunnels, etc.

Penberthy Automatic Electric Sump Pumps and Automatic (water operated) Cellar Drainers are built of copper and bronze throughout . . they cannot rust.

The design and workmanship of Penberthy Pumps are as outstanding as the quality of the materials used in them. Consequently, these pumps are trouble-proof as well as rust-proof.

There is a type and size of Penberthy Pump for every purpose. Sump covers for both electric and water operated units can now be supplied at slightly additional cost. Penberthy Pumps are stocked by leading jobbers everywhere.

PENBERTHY INJECTOR COMPANY

Established in 1886 — DETROIT — Canadian Plant Windsor, Ont.

PENBERTHY PUMPS REMOVE SEEPAGE WATER

Another achievement

THE NEW QUIET "Standard" ONE-PIECE CLOSET

QUIET in operation, compact in size, attractive in design, the New "Standard" One-Piece Closet offers many improved features to help you close sales. It is made in one solid piece of genuine vitreous china, smooth, hard and non-absorbent.

The important tank fittings so essential to perfect operation are the "Standard" Special Water Control and Flushing Mechanism, representing many years of experience. They are quiet, dependable and durable.

Not only is the "Standard" One-Piece Closet sanitary because of the large water surface and deep water seal, but the ball cock having both refill and vacuum breaker, will prevent contamination of the water supply.

The "Standard" One-Piece Closet is supported on the bowl pedestal, the tank is free from the wall, and installation is simplified because there are only two connections to make, one to the supply and the other to the waste line.

Go after sales by telling your customers about the "Standard" One-Piece Closet. Your first step in selling is displaying it. Use the special showroom offer to place one on display. Take your customers to the "Standard" showroom to see this product. Your efforts in pushing the sale of the "Standard" One-Piece Closet will bring increased profits. Write today for sales helps.

Standard Sanitary Mfg. Co.
PITTSBURGH, PA.
DIVISION OF
AMERICAN RADIATOR & STANDARD SANITARY CORPORATION

the system will circulate right and without difficulty.

It is believed that the return circulation line would be better off if hooked into the line supplying the coil rather than into the horizontal line with the drain cock and our correspondent seems rather skeptical of this himself as he particularly inquires about this connection. One point that we think should be taken care of is the arranging of the return circulation line so that it would be impossible to draw cold water through this line when the faucet on the kitchen sink is opened. This has been known to occur in such cases where the distance from the tank to the faucet is less by way of the return pipe than by way of the supply pipe, as the friction in the line is proportional to the length of the line. This

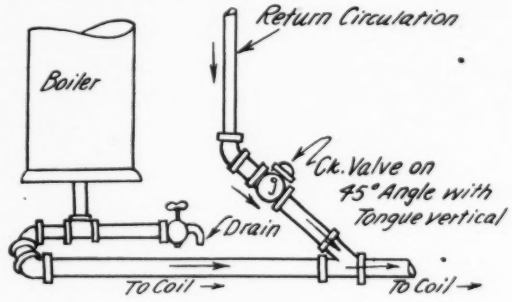


Fig. 2

means that there would be more friction involved to draw water to the kitchen faucet through the supply line in the proper manner than through a reverse circulation in the return line.

This easily may be overcome by running the return circulation pipe into the line supplying the coil as previously suggested and using a "Y" fitting and 45-degree connection with a check valve in the 45, so as to have the tongue hanging vertically and to interpose no obstruction to the gravity circulation. This is indicated in Fig. 2. The quick heating connection may be used as our correspondent shows, as it is vented through the supply line to the fixtures. This supply line should be made at least ¾-in. pipe and not ½-in. pipe, as shown in Fig. 1. The return is always made one or two pipe sizes less than the supply and sometimes, on very small systems, the same size as the supply; it never is made larger and this—if not changed—will result in all of the fixtures tending to draw their supply through the return and to reverse the circulation. If the range boiler could be raised so that the bottom were about level with the heating coil there would be a better circulation maintained between the coil and the boiler. Otherwise the installation has nothing objectionable. Of course the lines should be pitched so as to vent out the air through the lavatory connection.

More About the Underwriters' Loop

TO THE EDITOR:

In your issue of March 5th there appears an article by Harold L. Alt on the "Heating of Residences and Small Structures," in which Figs. 35 and 36 illustrate the use of the Underwriters' Loop on a single and double boiler installation. In both of these drawings the center of the top of the loop is shown at the same height as the boiler water line, whereas the A.S.H.V.E. Guide for 1931, on p. 176, indicates the top of the loop below the water line and states that the "wet return connects through the shortest possible horizontal pipe 2 in. below the normal water line. . . ."

The writer used this method of connecting up returns over 15 years ago and long before it was called the "Hartford" or "Underwriters' loop" and made it a practice to keep the top of the loop 2½ in. below the normal water line for a 2-in. loop; 3 in. for a 2½-in. loop, and 3½-in. for a 3-in. loop, which has proven satisfactory in every case. Several times some of our fitters have installed the loop as shown in the article and it always has been necessary to change it so as to lower it at least 2½ in. below the water line. Placing the top of the loop as shown in the article will cause the live steam to come into contact with the water in the return causing water hammer. I have enclosed a sketch showing how we install our loops.

New York. W. H. S.

TO THE READER:

Our correspondent has submitted a sketch showing a connection for an Underwriters' loop as illustrated in Fig. 1. There is no criticism to be offered on this sketch except that it does not give as full protection to the boiler as does the loop with the top at the proper boiler water line. This same question came up a couple of years ago, and the trouble was taken to go direct to the Hartford Boiler Co., and to obtain a pamphlet illustrating the Underwriters' loop in which pamphlet were given typical

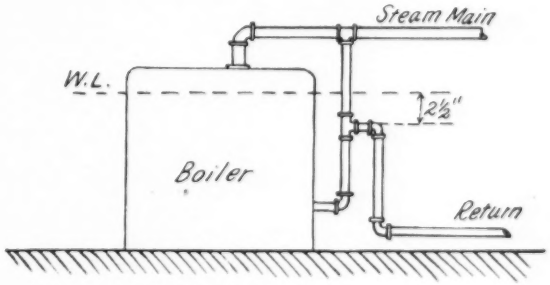


Fig. 1

boiler connections employing the loop for both one and two boilers. In each case the top of the loop was at the water line of the boiler and not below the water line. The point of placing the top of the loop below the water line was then brought up and the information was that the way they recommended the loop was with the top at the water line.

It must not be forgotten that the use of the loop is not compulsory and that any modification of the loop which any contractor regards as desirable or an improvement may be made without any insurance penalty; this loop is only offered by the insurance people as a more satisfactory method in their opinion of protecting boiler against losing water and to eliminate the use of check valves. On the other hand the advantage of the loop is largely effected by the height of the top because if this

height is lowered too much the protection to the boiler is correspondingly diminished. There are many boilers especially of the round type which have a section immediately above the fire pot, and in such a location that the lowering of the water line to a substantial degree may uncover some of these surfaces and leave them exposed to the fire.

For example, our correspondent uses, he says, on a 3-in. loop a distance of 3½ in. down to the top of the loop from the normal water line; this makes 6½ in. from the normal water line to the bottom of the loop—that is the bottom of the inside of the pipe—and consequently the water could be backed out of the boiler until the water line had fallen 6½ in., before the loop would prevent farther lowering of the water line. It seems that is going to the other extreme a little too far, and the safer results would be obtained by not submerging the top of the loop any more than necessary. In fact the practice, as followed out by our correspondent, does follow either that suggested in the article mentioned or the "Guide" quoted by him. If he does not want to raise the top of his loop, as illustrated in the article, we believe he should not depress it any more than the 2 in. mentioned in the "Guide," if the best protection is to be secured.

We have heard the complaint about noise and water hammer before but have never been able to obtain any dependable data as to when this occurs and why. It does not occur at all times, as several jobs are known, in which the top of the loop is level with the water line and in which no trouble or noise ever has been experienced.

Can You Answer These Questions?

A Question and Its Answer

The following question was asked in the issue of April 2, and the following answer is by a reader:

If a pneumatic water system tank had 50 lb. gauge initial air pressure, what would be the gauge pressure when it had been pumped 2/3 full of water?

THE action of a pneumatic tank is very interesting when the matter of the air contained therein is concerned. It must be remembered that air is a gas and at atmospheric pressure is already under a pressure of 14.7 lb., at sea level. At higher elevations this pressure is somewhat less and this factor must be allowed for in considering pneumatic tanks located in places of high elevation. In the problem here it will be considered that the tank is at an ordinary elevation somewhere near sea level and that the atmospheric pressure is about 14.7 lb. per sq. in. With this in mind a cubic foot of air at atmospheric pressure will be seen to occupy 1 cu. ft., when the absolute pressure is 14.7 lb. per sq. in. If it were compressed so as to occupy only one-half its previous volume—that is, if it were compressed to ½ cu. ft.—then it would have the absolute pressure doubled provided the temperature remained the same. If the air were expanded so it occupied twice its original volume—or, say, 2 cu. ft.—then its absolute pressure would be one-half as much; this shows that when the air occupied ½ cu. ft. the pressure would rise to

$$14.7 \times 2 \text{ or } 29.4 \text{ lb., absolute,}$$

while if it expanded to twice its original volume the pressure would be

$$14.7 \text{ lb.}/2 \text{ or } 7.35 \text{ lb., absolute,}$$

With this in mind, an examination of the problem shows that, before any water is pumped into the tank, the tank is filled with air until the initial air pressure reaches 50 lb., gauge which is

50 lb. plus 14.7 lb., or 64.7 lb., absolute pressure.

When the tank has been pumped 2/3 full of water it is evident that the air has been compressed to 1/3 of its original volume; this follows because, if the water fills 2/3 of the tank capacity, only 1/3 of the tank capacity can be occupied by the air which originally occupied the entire tank capacity. It therefore is evident that the air when compressed to 1/3 of its original volume will have three times its original absolute pressure, which already has been calculated as being 64.7 lb.; so that the new absolute pressure will be

$$64.7 \text{ lb.} \times 3 \text{ or } 194.1 \text{ lb., absolute}$$

and to reduce this to gauge pressure all that is necessary to be done is to subtract the atmospheric pressure from the absolute pressure giving

194.1 lb. — 14.7 lb., or 179.4 lb. gauge pressure.

Had this tank been installed at an elevation where the country is 10,000 ft. above sea level, the atmospheric pressure would be only about 10 lb. per sq. in., instead of 14.7 lb., and the previous calculations would not be affected up to the point where the final gauge pressure was obtained which would be altered to

194.1 lb. — 10.0 lb., or 184.1 lb., gauge pressure.

This is because the air pumped into the tank before the water would have been pumped in until 64.7 lb. absolute pressure was reached but the gauge pressure would read in this case

$$64.7 \text{ lb.} - 10.0 \text{ lb., or } 54.7 \text{ lb., gauge,}$$

and the rest of the problem runs along just the same until the final gauge pressure is obtained as 184.1 lb. It will be noted that both the initial gauge pressure and the final gauge pressure are just 4.7 lb. higher than that obtained when the tank was assumed at sea level.

If, however, it is desired to keep the initial 50 lb. air pressure, and then to work on the basis of the tank being at 10,000 ft. elevation it would be necessary to alter the calculations as follows:

Initial air pressure, gauge	50 lb.
Atmospheric pressure at 10,000 ft.	10 lb.
Absolute air pressure	60 lb.

and, compressing this air to 1/3 of its initial volume

(Continued on Page 87)

DOMESTIC ENGINEERING

AN EDITORIAL SECTION

AUTOMATIC HEAT

AUTOMATIC HEAT SECTION

THE SILENT GLOW *RANGE BURNER*

APPROVED BY GOOD HOUSEKEEPING INSTITUTE

It is not difficult to understand why the Silent Glow Range Burner has been singled out for honors and stands today as the leader of the industry. Behind it is the heritage of New England craftsmanship—the pride of creating products that are second to none in quality, beauty and service.

Since the dawn of American history New England has always led in the design and manufacture of precision instruments and machines—such as watches, sewing machines, clocks, typewriters, machine guns and aeroplane motors. Today New England shows the way in the making of oil burners, with Silent Glow at the head of the procession. The makers of Silent Glow Oil Burners are the oldest and largest manufacturers of oil burners in New England. In 1931 we produced and sold more oil burning units—furnace burners, range burners, space heaters, etc.—than any other company in the world—truly a splendid tribute to the skill and integrity of purpose of a New England manufacturer. The success of Silent Glow Oil Burners has been due to the fact that they are made of the highest quality materials, by experienced New England craftsmen. Silent Glow Burners will live up to every claim made for them.

Tested and Approved SERIAL NO. 3093 by Good Housekeeping Institute Conducted by GOOD HOUSEKEEPING MAGAZINE

Endorsement by the Good Housekeeping Institute is one of the greatest tributes that can be paid to a fine product. The 'good Housekeeping seal on Model W Silent Glow Range Burners means that this burner has passed the most rigorous tests and examinations and in the opinion of experts will give lasting service and satisfaction.

The tremendous endorsement and unparalleled sales record of Silent Glow Oil Burners, together with the backing of the largest producer in the industry, place our leaders in a commanding position of leadership. Our financially strong position and unswerving policy of close cooperation with our dealers are other important features that will make it logical and profitable for you to become a Silent Glow dealer. Write us today for further information.

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Member American Oil Burner Association *Member National Electric Light Association*
Member Oil Heating Institute *Member Distillate Burner Manufacturers Association*

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BOSTON, MASS.
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IN CANADA: SILENT GLOW OIL BURNER CORP., LTD.
6320 St. Hubert St., Montreal, P. Q.

In this illustration, unit heaters of the gas-fired type are shown installed for heating a school room. Note how the units are turned. The general principle is the same as that shown in the sketch below

Automatic Heat Opens Wide Field for Unit Heaters

By THOMSON KING

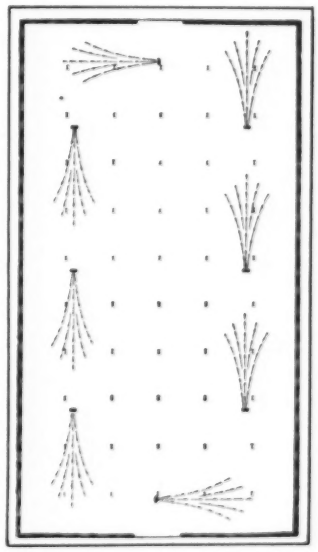
"THE following incident occurred about a month ago. A friend informed us that a certain owner was in the market for a heating plant. This owner had already received estimates from four heating contractors on the previous day, but these estimates were unsatisfactory to him. We saw this owner at his place of business, a drug store which he was remodeling. He wanted us to figure on installing three steam radiators, the mains to be extended from the building adjoining. We talked of using a gas fired unit heater instead, which really was the only way that this particular store could be heated to advantage. He finally asked us to quote him a price, which we did.

"Then he told us that the gas company had recommended and quoted a price on a unit heater the previous week, but that he had decided, on account of the higher cost, to use radiator heat. He further stated that since we also suggested a unit heater and recommended it so highly, he would give it further consideration. We walked out with the order for a unit heater in our possession. We made a sale, and a pleased customer.

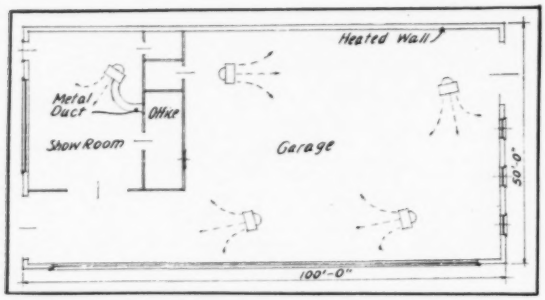
"The point of this incident that I am attempting to bring out is, that any one of those four heating contractors could have sold that owner a unit heater, had they only suggested it. Their profit would have been at least three times greater than on a radiator job. Why didn't they try to sell a gas unit heater? It is quite likely that they did not have enough information concerning this appliance. They probably are in need of the same co-operation we received years ago, which we still receive and require. They, and many more contractors should have information, education and assistance in the sale of gas."

Information on unit heaters of the gas-fired type has been developed with the above incident in mind and it is presented in this article to assist the contractor in making correct unit heater installations.

The gas unit heater, in one of its common forms, consists of a gas burner or burners in a combustion chamber placed below and connected with a system of tubes. The



This shows how unit heaters are placed in a large space so that the action of one will supplement the action of another



To heat the small office space, in this plan a metal duct carries heated air to it from the unit in the showroom

products of combustion pass through the tubes and from them to the vent, giving up their heat on the way and entering the vent at a temperature of say 350 deg. Fahr. A motor driven fan is mounted on and built into the heater so that it can drive a large volume of air through the space around the tubes. Accordingly hot products of combustion move inside the tubes with a forced circulation of air on the outside and so a transfer of heat from the products of combustion to the rapidly moving current of air is effected. The air is projected from the heater through adjustable louvers with sufficient force to carry it for a considerable distance into the space to be heated and to set up there a positive circulation and diffusion of the warmed air through the room. The louvers may be set to throw the air, at the proper angle to secure the best results.

AUTOMATIC CONTROLS FOR UNITS

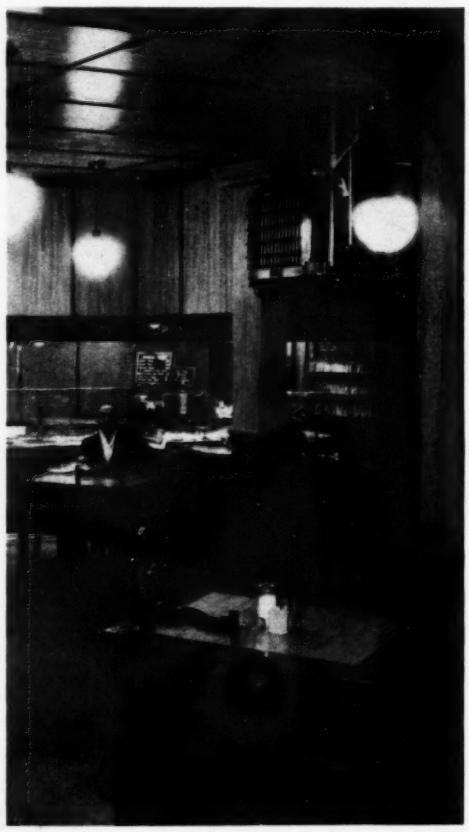
Gas unit heaters are equipped with constant burning pilots and the usual control and safety devices. They contain no water and can be quite simple. An automatic cut-off valve in the gas line is opened and closed by a room thermostat or by hand. This is usually accomplished in such a way that the valve cannot open until the fan has come up to speed and must close if the fan stops. One make uses a centrifugal governor driven from the fan motor which opens the gas valve when the motor is running and closes it when the motor begins to slow down.

The importance of this general cut-off feature is due to the fact that if the gas were allowed to burn without the fan driving air over the heating surfaces they would be overheated and probably injured.

A safety pilot to close the main gas valve, if the pilot should go out, and a gas pressure regulator are also provided as standard accessories.

The unit heater is usually designed for suspension from joists or ceilings or for mounting on a wall or column although models which stand on the floor are also built. When the unit is suspended from the ceiling it occupies no useful floor space and does not interfere with windows or furniture.

The first step in determining the proper size of unit for any job is to figure the heat loss of the space to be heated. This will be expressed in Btu.'s per hour or in equivalent feet of standard steam radiation. It is simpler to have it in Btu.'s per hour. If the heater is to be unvented the efficiency is 100 per cent and we divide the heat loss by the input rating of the heater in Btu.'s per hour to find the number of heaters necessary. If, as is more often the case, the heater is to be vented, we must divide by the output of the heater, which is usually about 80 per cent of the input, to find the size and number we need.



The entire automatic gas-fired heating plant for this restaurant is suspended from the ceiling as shown in the above photograph

In the preceding paragraph we have made no allowance for starting load and usually this is not necessary, but if we are dealing with a case where the heater is to be cut off entirely at certain times and the temperature is to be allowed to drop very low in the space to be heated, we should make an addition of 25 per cent to our calculated heat loss to give us the extra capacity to raise our tmperature quickly when we are starting cold with minimum temperatures outside.

A few general rules may be laid down for the installation of gas unit heaters. The location of the heater should be such that the movement of air from the fan should sweep the length of the space to be heated and

preferably down the cold side or be directed toward the cold side.

When more than one heater is used the location should be planned so that there will be no conflicting or opposing air currents. This principle is illustrated by the diagrams. The units should be so spaced as to secure an even flow of warm air to all parts of the room.

According to the writer's experience, where heaters are suspended from walls or joists the lowest point of the heater should be 8 ft. above the floor. When the space to be heated is very high and it is necessary for the heater to be placed far above the floor, say 20 ft. or more, it may be necessary to use a special 90 deg. nozzle to direct the air stream toward the floor.

When it is necessary to get heat into a small room adjoining a large space an air duct may be used to deflect and deliver part of the air from the heater into the closed space. Some way for the air to return from the room must be provided as by an open door or grill.

In this garage, note that the rear heater blows toward the rear exposure which contains doors and large proportion of glass area

When it is undesirable to place the unit in the space to be heated it may be set in a partition or a closet with a grill through which to deliver air and a return grill below it.

Gas lines should, of course, be of adequate size to carry the required amounts of gas without undue pressure loss and must be free from traps and pitched to drain towards the meter.

We have already referred to the question of venting. When this is necessary and the fuel is manufactured gas the vent line should be made of some acid resisting material. When the vent pipe is long, say over 10 ft., some provision for draining away condensate, that may collect in the pipe, should be made.

The gas unit heater is a self-contained heating and circulating system which can be installed where the heat is needed. It operates independently and automatically without reference to boiler plants, heat losses of transmission or the services of a fireman. It places in the hands of the heating contractor a very important addition to the standard equipment available for his use.

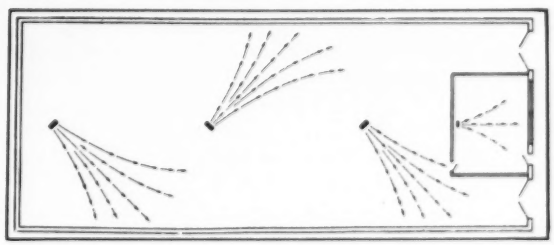
It is interesting to note what the 1932 edition of the Guide of the American Society of Heating and Ventilating Engineers has to say on the subject of unit heaters. Parts are as follows:

The heat losses of a building to be equipped with unit heaters are determined in the same manner as for any other heating system, excepting so far as the unit heaters may change the air temperature at the ceiling or at the mean height of the walls.

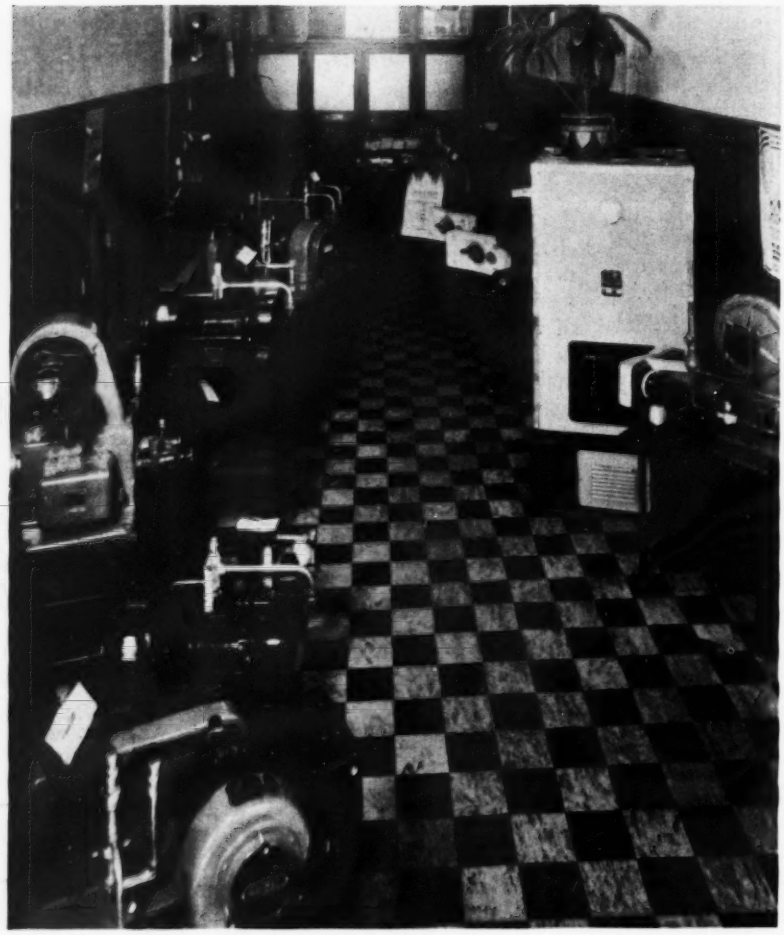
Unit heaters may be arranged to recirculate the air or to supply warmed air from the outside for ventilation or to make up air exhausted. If all or a part of the air is to be taken in from out-of-doors, the heat necessary to warm this air from the outside temperature to the inside temperature must be added to the transmission or other losses. Unit heaters of the number and size needed to furnish the total heat required are then selected from the manufacturers' rating tables, using these ratings at the temperature at which the air will enter the heater.

RECIRCULATING HEATERS

For recirculating heaters with intakes at the floor level, use the temperature to be maintained in the room as the temperature of the air entering the heater. Where suspended heaters are used without any intake boxes extending down to the floor level, a higher entering air temperature should be used than that at which the room is to be maintained. With suspended heaters taking in air at some distance above the floor, the temperature variation from floor to ceiling may reach as much as 1½ Fahr. degree for each foot of elevation when the maximum capacity of the heaters is required.



Because this building is narrow, the units are placed so as to sweep the walls. One heater builds a bank of heated air against the doors



Section of this dealer's show room devoted to oil burners

Making Good With Oil Burners

Modernized Cellar Under Show Room Helps Sales

HERE'S a good example of what a heating contractor can do when he aggressively merchandises automatic heat. The dealer in this case is Hans Lieblich of H. Lieblich and Co., 517 West 181st Street, New York.

In 1905, he began doing business as a plumbing and heating contractor, but he soon saw profit possibilities in merchandising and opened a showroom. He prospered. In 1925, he again saw profit possibilities in automatic heat so he started to push oil burners.

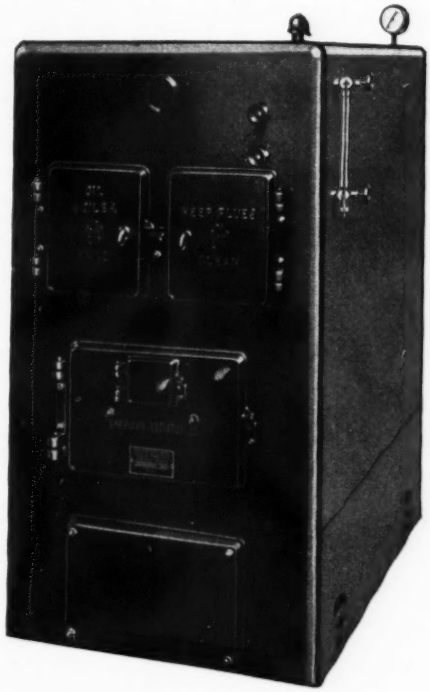
During the past six years, he has made more than 800 installations in upper Manhattan and the Bronx and he services more than 1,500 oil burners all told, using four service men for this work. During June, 1931, he sold 30 oil burners. He was able to make 1931 a good year, and 1930 was better than 1929.

When we asked Mr. Lieblich if he was worried about the depression, he said that he had not noticed it as yet. This is repeated to show what a heating contractor has done when he seriously tackled the question of merchandising.

"Today is the day of the specialist," explained Mr. Lieblich, "and the plumbing and heating contractor should not only be prepared to merchandise the general run of plumbing and heating goods, but he should push a profitable specialty as a headliner and a contact producer for his other lines. Automatic heat is in the money today and the heating man will profit most who finds it out the quickest.

"The best advice I can give the heating dealer on oil burners is to pick a high grade product backed by a company of financial standing, study the product from every angle, employ competent service men, merchandise the burner with modern merchandising methods and stick to the line. It does not pay to switch from burner to

Built Exclusively for Oil Burning



THE NEW IDEAL OIL BURNING BOILER NO. 12

Built in cooperation with the American Oil Burner Association to meet all the special requirements of burning oil, the New Ideal Oil Burning Boiler No. 12 embodies many new and exclusive features.

• SOME FEATURES OF THIS BOILER •

NEW CASCADE HUMIDIFIER

Automatically provides the correct humidity; enclosed in non-corrosive aluminum cabinet; sanitary and silent; comes completely equipped ready for attachment.

High efficiency...flue travel four times the length of the boiler...adapted for both rotary and gun type burners ...burners can be installed either in front or rear...simplified external hot water heater connection...special port in door for observing performance of burner...encased in a beautiful, lustrous, insulated metal jacket finished in light green enamel.

Write today for complete information and catalogue.

AMERICAN RADIATOR COMPANY

40 West 40th Street, New York City

Division of AMERICAN RADIATOR & STANDARD SANITARY CORPORATION

burner. It undermines customer confidence, disrupts the organization and is costly. We are handling the same burner today that we started with in 1925 and we have no intention of changing."

The Lieblich service slogan is "No burner is better than its installation and service" and Mr. Lieblich sees to it that the installation and service is first class. He contends that service calls are few and the percentage to sales is less than one per cent if the installations are properly made. He gives one year of free service and after that the customer pays $25 a year up.

These service fees represent a tidy income considering the fact that he services 1,500 installations a year with only four men and pays no commissions to get these service contracts. He lands these customers by direct mail, enclosing a contract with a letter. Service customers sign the contracts and return. This circularization takes place in June and during the first week in July last year, Mr. Lieblich already had secured 300 service customers for the season of 1931-1932, which business was procured entirely by mail. This shows the possibilities for side-line profits in oil burner servicing.

CONTRACT FOR OIL BURNER SERVICE

Here is a copy of the Lieblich oil burner service contract.

"I hereby request you to furnish me with service for the heating season beginning October 1st, 1931, and ending May 1st, 1932, for which I agree to pay $———. If paid before July 1st, the charge will be $———.

This service to include the cleaning and reconditioning of my burner, regular periodical inspections by your authorized inspector and any emergency service calls, day or night, for this period. It is understood that this service includes labor cost in replacing burner parts but not the cost of such parts, also does not include service calls for the following reasons, which are to be paid by me: Lack of oil, if the thermostat indicator is set below the room temperature, if the emergency switch is in the 'off' position, thermostat clock run down or improperly set after rewinding."

Name .....
Address .....

The annual fees run from $25 to $45 and sometimes more, according to the size of burner. Periodical inspections are made once monthly and if the customer wishes the burner taken care of during the summer months, from May 1 to October 1, for hot water use, there is an additional charge, usually ten dollars.

This plumbing and heating engineer has made oil burner installations in the homes of internationally known personages, such as George Gershwin, the celebrated composer of "Rhapsody in Blue," "Scandals" and other works; Barron Collier, the car card specialist; John J. McGraw, manager of the New York "Giants," and other celebrities. He has equipped many apartment houses, business buildings, banks, garages, theaters,

Oil burners help sell other heating products

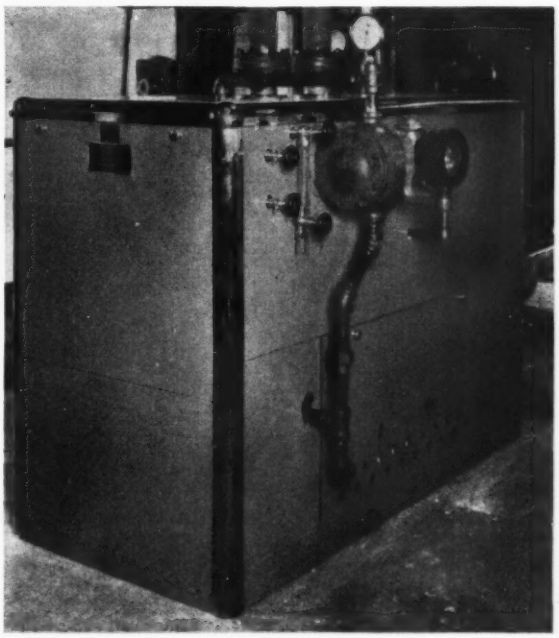
AUTOMATIC HEAT

Announcing the
ELECTROL-RICHARDSON OIL BURNING UNIT

A BOILER Manufacturer and a Burner Manufacturer, both with long and honorable records, have now combined their engineering facilities to produce a complete oil burning heating unit in the belief that it offers an unusual opportunity to the Automatic Heating Trade and a real solution to the needs of the public, both in new construction and replacements.

We sincerely believe the Electrol-Richardson Oil Burning Heating Unit to be the first combination of a boiler and an oil burner which has been carefully and intelligently engineered from the ground up with the sole aim of producing a *complete* combination in every sense of the word. It is *not* a mere adaptation of an existing burner to an existing boiler.

The Unit is compact to the *n*th degree and can readily be installed in any house. The maximum width of any part being less than 25 inches, easy access through an ordinary doorway is provided.



The Boiler and Burner are both completely enclosed within an attractive jacket of a design embodying unusual acoustic properties. Absolutely quiet operation has been achieved, plus very high combustion and overall efficiencies.

Send for full details and specifications

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New York City

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244 Madison Avenue
New York City

COUPON

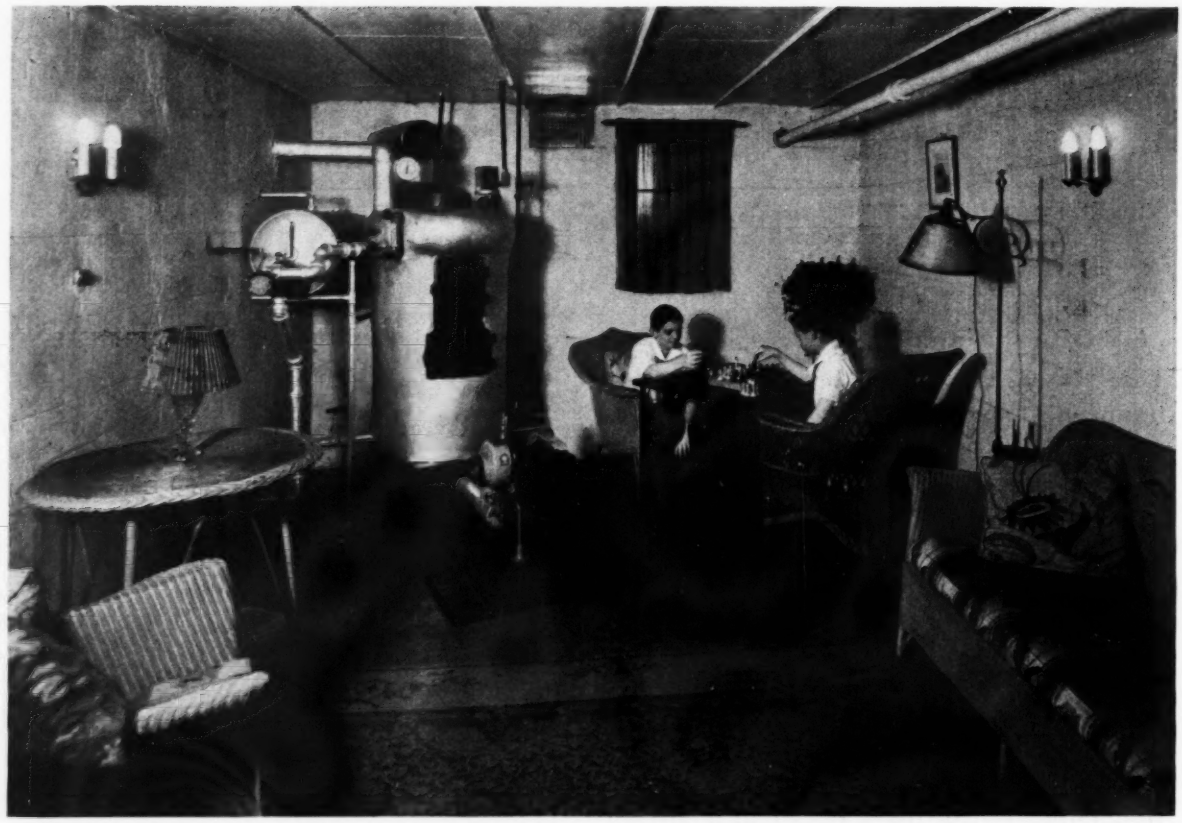
Electrol Incorporated,
227 East 45th Street,
New York City

Please send me full details and specifications of the Electrol-Richardson Oil Burning Unit.

Name.....

Address.....

AUTOMATIC HEAT SECTION



Modernized cellar under dealer's show room where prospects see oil burner in action and learn how automatic heating plants permit the owner to make an extra room out of the basement

churches, sanitariums and other large institutions.

How does he get this business? By going out after it with ten outside salesmen, regular direct-mailings and special letters to follow up salesman interviews and newspaper advertising. He runs advertisements each week in the *New York Times, New York Herald-Tribune, New York Journal* and the local papers circulating in upper Manhattan and the Bronx. Advertising in these papers is not cheap and Mr. Lieblich spends more in a week than many plumbers spend in a year on newspaper advertising.

PLAN FOR HIRING SALESMEN

Mr. Lieblich is his own sales manager, and he says that he is learning something new about salesmanship every day. His men work on a drawing account against a commission arrangement. He pays a new man a drawing account from the start, then gives him one month to make good or discharges him. "You can not judge a producer very well by reading his recommendations or figuring him out by any special formula, at least I can't," commented Mr. Lieblich. "We get our men mainly through newspaper advertisements when we need such help, but fortunately our canvasser turnover is low so we seldom have to go out scouting for new blood.

"However, I do not believe in these psychological tests to unearth promising salesmen. The most effective system is to size up a man from your own standpoint. If he makes a good impression on you, looks clean, neat and respectable, the chances are that he will make the same impression on others, if he will work. We make sure that our men work by demanding results or dismissal. Sales are the best proof that a man is working. Of course, we also get daily reports for follow-up with direct-mail and sometimes telephone calls."

Each Lieblich canvasser is allotted a territory to which he must stick. He may use a car or his own legs to make calls. If he uses a car, he pays his own car expenses. When this heating dealer first began selling oil burners with outside canvassers, they had to cold canvass but not today. Plenty of leads are forthcoming as a result of newspaper advertisements, direct mail and satisfied customers. Mr. Lieblich holds sales meetings once every two weeks when pertinent topics are discussed. He does not believe in wasting the salesmen's time with daily sales meetings.

This merchandiser not only goes after oil burner business aggressively but when a prospect comes into the showroom or a salesman brings in a prospect, he has plenty of equipment to select from. One of the accompanying photographs shows the oil burner section of the H. Lieblich & Co. showroom. After giving a prospect this good impression of oil burner models, he is taken downstairs and shown a real modernized cellar. A picture of the Lieblich showroom basement is also shown and this heating engineer is one of the few in the country who utilizes his showroom cellar to sell basement modernization to oil burner prospects.

Heating Contractor Sells Three-Hundred Stokers

Ideas and Methods which have made this record possible are described . . By A. J. Kernan

"I'VE NEVER sold a stoker to anyone who has not seen it in actual operation." That is James N. Palmer's way of backing up his statement that actual demonstration of his product is 75 per cent of every sale.

Mr. Palmer has earned the right to speak authoritatively for he has sold and installed successfully 300 coal stokers for domestic jobs within the past five years. His place of business is in Utica, New York and his territory includes Oneida, Herkimer and Madison counties.

Two salesmen are employed by Mr. Palmer throughout the year. In the busier season of summer and fall he adds one or two men to his force. Men are chosen without regard to previous sales experience. They are trained by Mr. Palmer.

HOW STOKER BUSINESS IS CONDUCTED

No hard and fast rules govern anything Mr. Palmer does, he admits. A new salesman is first sold on the stoker through actual demonstration and then versed in its advantages over other heating methods.

Salesmen in the Palmer office work on a straight commission basis of 15 per cent. The salesman is paid when the contract is signed.

Mr. Palmer requires a 25 per cent down payment and takes a note for the balance. He draws a contract to fit the requirements of each individual purchaser.

Despite the depression, cash sales last year were greater than ever before. Fifty per cent of Mr. Palmer's sales in 1931 were for cash whereas in other years 90 per cent ordinarily have been on credit.

The Palmer sales method places great store on the value of the customer as a prospect producer.

Every prospect receives from the Palmer salesman a list of the names, addresses and telephone numbers of all Palmer customers. The list is left with the prospect and he is urged to communicate with any of the stoker owners. In this connection Mr. Palmer said:

"Curiosity will make a prospect look over the list to see who is on it. If he is even mildly interested, he is very apt to call up someone he knows on the list, and ten to one he'll look over someone's stoker. When this happens, he's 75 per cent sold. All we need is the other 25 per cnt in which to close the deal."

The Palmer home and office are both equipped with stokers and salesmen can always give a demonstration there if the home of a customer is not convenient.

The stoker which Mr. Palmer sells is installed in homes of every size and in small apartment houses. Since he has found that he can show the greatest cash saving to home owners who use fifteen tons or more of coal in a season, a list of these people is in process of completion.

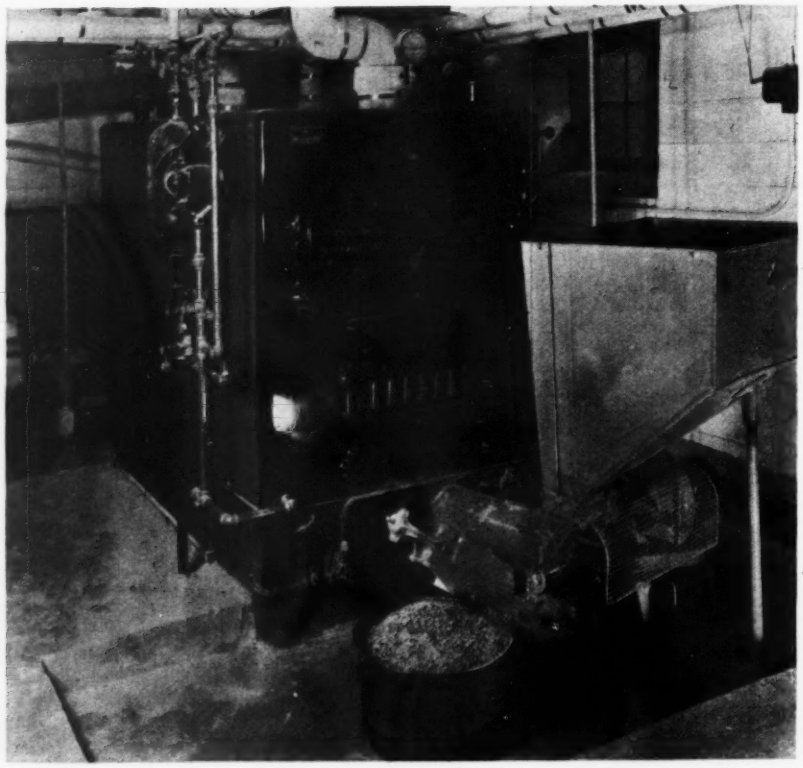
The sales appeal to the home owner who uses less than fifteen tons of coal a season is based on safety, convenience, even heat, cleanliness and similar advantages.

While customers are used in developing a prospect list Mr. Palmer is constantly thinking up new ways to increase this list. Instead of glooming over bad times, he is finding ways of turning the economic situation to sales advantage.

Convinced that home owners in the smaller communi-

This view shows one part of a stoker display at a New York State Fair in Syracuse which was sponsored by J. N. Palmer together with Syracuse and Rochester dealers

AUTOMATIC HEAT SECTION



Two stokers are shown installed with this boiler. The second one is at the left rear. Note the ash removing facilities

ties in his territory are best able to buy, he is concentrating in that field this year.

Two civic or community enterprises that netted several prospects and sales for Mr. Palmer were a Utica Booster Exposition and a Home Beautiful display. In these two events it was the actual demonstration of the stoker in operation that brought results.

Displays from which actual returns were less directly evident, included one at the New York State Fair in Syracuse late in August and a display in the office window of the Palmer place. Both attracted crowds.

Newspaper advertising does not appeal to Mr. Palmer as a sales medium for his stoker work. He has tried it. Today he keeps his name before the newspaper public in a business card only.

The direct mail method is the best way of reaching his prospects, Mr. Palmer is convinced. At present he is sending to prospects weekly a series of printed postcards. A series of fifteen weekly letters go to all new prospects.

Cards and letters serve to break the ice for the salesman's entree into a home or office. This gives him an opportunity to leave with a prospect his list of satisfied customers and perhaps to arrange for a demonstration. Another contact comes when he calls for return of the list. Two small steel files in the Palmer office contain the key to their progress. One card index holds the names of all customers, date of sale and other pertinent data. The other file holds the names of prospects. The growth of both is a fair barometer.

A window display that was simplicity itself but which drew and held a record crowd, consisted of two unsolicited letters of appreciation and satisfaction from customers. These were attached to the glass. "Some day," Mr. Palmer says, "I'll seek more such letters for the use of salesmen."

A sales plan which just now is taxing all of Mr.

This is another part of the stoker display which J. N. Palmer of Utica sponsored at the New York State Fair in Syracuse, together with dealers from Syracuse and Rochester

AUTOMATIC HEAT SECTION

Not just another Stoker but THE COAL STOKER

on which to Found the Leading Automatic Heating Business in Your Community

NOW that it can be done better with coal, the economical fuel, Automatic Heating, the young giant of industry, is hitting its real stride. More essential, more generally desired than radio or mechanical refrigeration, it will quickly outstrip them both.

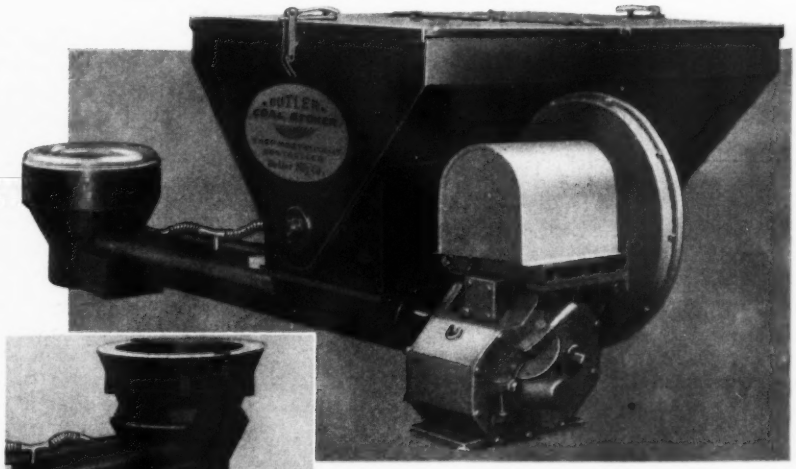
To share and prosper in this flourishing, fast-moving field of business, be sure to choose the right stoker. As was the case in the motor car field—the fittest will survive.

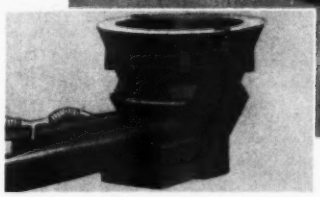
Bituminous Coal Combustion Perfected

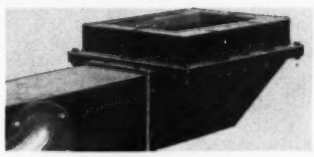
For almost ten years a famous combustion engineer concentrated on perfecting complete, smokeless combustion of bituminous coal. His labors resulted in the patented system of forced draft distribution, through especially designed retorts and tuyeres, that is now an exclusive feature of the Butler Coal Stoker. In this outstanding, patented system the air flow is adjustable for the correct combustion of practically all grades of bituminous stoker coals. A complete series of retorts and tuyeres of different shapes and designs adapts the Butler stoker to all types of residential furnaces, commercial heating plants and power boilers up to 200 H. P. This and the ten sizes of Butler Coal Stokers enables the dealer to fulfill practically every automatic heating requirement in any locality where bituminous coal is available.

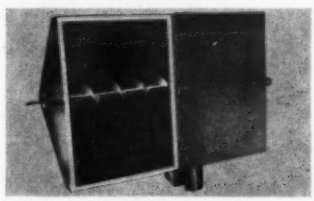
New Transmission — Gears Always In Mesh

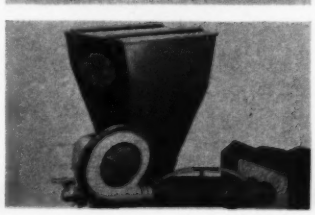
Now Butler engineers announce a compact, silent, selective stoker transmission as new and different as was free-wheeling on the motor car. It is a continuous feed, worm and gear type with the big difference that all gears are always in mesh. Without taking a single gear out of mesh from two to three speed changes, or neutral, are made with a simple but revolutionary cam type clutch at the shift of a positive, smooth acting lever. Patent applied for—you'll find nothing to equal it on any but the Butler Stoker. On the larger sizes a new V-belt drive doubles the number of speed changes provided in the transmission.











Many Other Improvements

The new, convenient low type hopper, allowing more door clearance and easier filling, is now standard on smaller sizes—the vertical type shown below on larger sizes. Hinged dust tight hopper covers and positive screw feeding are hopper improvements.

Dealers Wanted In Every Bituminous Territory

The full history of the Butler Coal Stoker, details of its advanced design, its finely engineered and simple mechanism and its superior efficiency are now being published in our new stoker catalog. We want every logical stoker dealer of the far-sighted calibre interested in founding the leading automatic heating business in his community to write for it. We want to explain how the reputation of this AAA-1, 30-year-old manufacturing organization and our nationwide cooperative program of merchandising The Butler Coal Stoker is making our dealer franchise extraordinarily valuable. Write us now before your territory is assigned.

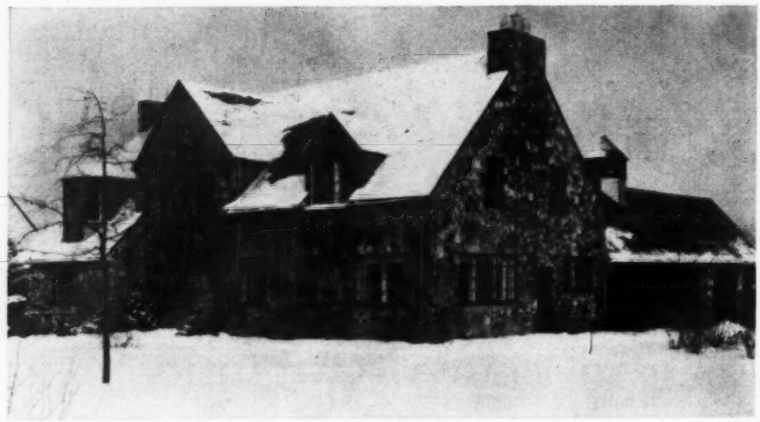
BUTLER COAL STOKER

BUTLER MANUFACTURING COMPANY

1263 Eastern Ave. Kansas City, Mo.

963 Sixth Ave., S. E. Minneapolis, Minn.

AUTOMATIC HEAT SECTION



A stoker was installed in this home by J. N. Palmer's firm. The view indicates one type of building and conditions under which the equipment will operate satisfactorily

Palmer's ingenuity is an attempt to get co-operation between himself and coal dealers.

Mr. Palmer sees that it would be to the mutual advantage of himself and coal dealers if they should co-operate. To this end he has just sent a circular letter to each of them asking if an informal meeting cannot be arranged for amicable discussion of the situation.

Asked what his closing arguments are, Mr. Palmer declared he himself didn't know. He admitted that he often was called upon by salesmen to come with them when it is time to close a deal, but just what he does or says to get the name on the contract, he declared he did not know. He said:

"When the stoker has been demonstrated and I've told what it can do and will save, I stop talking and put the contract before the prospective customer. If he wishes to ask questions, I answer, but otherwise I am through talking. I think some salesmen do not stop talking and never give the prospect a chance to sign."

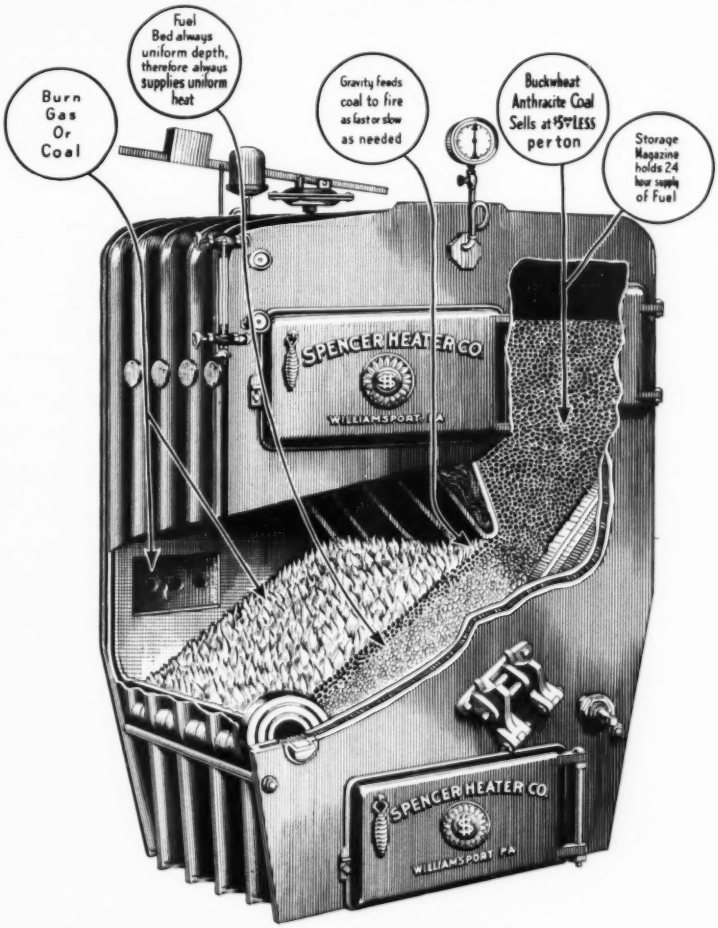
All heating plants are thoroughly checked before a stoker installation is made. Mr. Palmer advises a prospect what size stoker his place requires and would lose the sale rather than install one of lesser capacity than he sees is required.

His stoker installations have required little service and, as a result, Mr. Palmer has need for only a part time service man on his staff of mechanics.

The lower view shows what was done by way of remodeling and making living quarters in a basement as a result of installing automatic heat

This is the best time to sell SPENCER AUTOMATIC HEAT

Before Heating Troubles Are Forgotten


Burn Gas Or Coal
Fuel Bed always uniform depth, therefore always supplies uniform heat
Gravity feeds coal to fire as fast or slow as needed
Buckwheat Anthracite Coal Sells at $5.75 LESS per ton
Storage Magazine holds 24 hour supply of Fuel
SPENCER HEATER CO
WILLIAMSPORT, PA
SPENCER HEATER CO
WILLIAMSPORT PA

New Spencer Combination Boiler
BURNS GAS OR COAL

Spencer Sectional Boilers are now designed to permit the installation of the Gas Burner Unit later, if desired.

SPENCER
Magazine Feed
BOILERS
for steam, vapor or hot water

MANY home-owners in your town had heating problems last winter. A Boiler Breakdown; High Fuel Bills; House Alternately Underheated and Overheated; Getting up early every morning to start the fire; Running up and down stairs many times a day to "tend the furnace." Right now, while these troubles are still fresh in their minds, is the time to talk to these people about the ONE kind of heat that solves every one of these problems, Spencer Automatic Heat.

Do you know of any other boiler for which you can make and PROVE all these claims:

COSTS LESS to operate
Requires no more, and often MUCH LESS fuel
Gets more heat out of every ounce of coal
Does not waste one bit of coal
Requires much LESS WORK to take care of
Furnishes more even, healthful heat
Guaranteed as to capacity

Here is the way to get business now—and make money—in May and June. Locate people in your town who are disgusted with last winter's heating failures, hard work and big fuel expense. Tell them the exclusive advantages of Spencer Magazine Feed Boilers. Show them Spencers that have been in economical, successful operation in neighbors' homes for years.

The success of this Spencer plan is being proved every day by alert heating contractors. Write for details.

SPENCER HEATER COMPANY
Division of Cord Corporation
Williamsport, Pennsylvania
The Spencer Foundry Co., Ltd., Toronto, Ont., Can.

The Lowest Cost Heat You Can Buy!

Safeguard

YOUR PROSPECTS' MARGIN OF COMFORT

with a **G-E MOTOR ON YOUR OIL BURNER**

THE dependability of the motor which drives his oil burner . . . its electrical and mechanical fitness to do the job . . . is something no manufacturer can afford to overlook. Comfort . . . often health . . . depends upon its unfailing reliability. That is why so many of the nation's manufacturers of home oil burners are using G-E fractional-horsepower motors, and equally dependable heat control of G-E manufacture.

G-E fractional-horsepower motors, available in capacitor and resistance split-phase types, are backed by more than thirty years of design, manufacture, and application experience. They are engineered to match definitely the exacting performance characteristics of modern oil burners. And they have behind them an organization that is "just around the corner" if and when service may be necessary. Investigate G-E fractional-horsepower motors; there's a G-E office near you and there you will find ready coöperation.

In addition to a complete line of fractional-horsepower motors, General Electric manufactures transformers, cable, oil-burner control, etc., to meet every requirement.

210-179

GENERAL ELECTRIC

TRADE

NEWS OF PLUMBING AND HEATING CONTRACTORS

Detroit Plumbers and Wholesalers Study Selling Problem at Big Meeting

One of the largest meetings of master plumbers and wholesalers ever held in Detroit, Mich., took place recently at the Fort Wayne hotel, with approximately 800 persons in attendance. The master plumbers were invited to meet with the local wholesalers to consider the merchandising plan sponsored by the Central Supply Association. The plan, which has been described in a recent issue of DOMESTIC ENGINEERING, was presented by W. J. Spillane, president of the association.

At the suggestion of Fred Lorne, master plumber, a trade relations committee was appointed, composed of the presidents of the various plumbers' associations and clubs of the city. John E. Green was selected as its chairman. This committee was invited to meet with the existing trade relations committee of the wholesalers to consider the plan presented.

Briefly, the plan calls for the prominent display of prices on fixtures in the plumbers' and wholesalers' display rooms. This step was offered in an attempt to remove the "price mystery" that has prevailed in the industry during past years. The plan also calls for close cooperation between all branches of the industry.

June 8 Is Date for North Carolina Convention

The North Carolina Association of Plumbing and Heating Contractors will hold its 1932 convention on June 8. This year's convention, which will be the twenty-second annual meeting of the association, will be held at Hendersonville, N. C. J. A. Haley of Charlotte is state president, and E. B. Grady of Concord, state secretary.

Property Improvements Keep Money Active

"Millions of dollars are changing hands as a result of property improvement work now being carried on" according to a statement by Frederick M. Feiker, director of the Bureau of Foreign and Domestic Commerce and chairman of the National Committee on Reconditioning, Remodeling, and Modernizing.

Reports to the committee from all over the country show that spring modernizing campaigns are stimulating business. The following are a few examples: Portland, Ore., $5,000,000; Omaha, Nebr., $6,000,000; Duluth, Minn., $3,000,000; Carthage, Mo., $100,000; McAlester, Okla., $60,000; Fort Smith, Ark., $50,000; Titusville, Pa., $53,000.

"With building material prices lower than they have been for years and ambitious skilled workers available throughout the country, home owners are doubly justified in reconditioning their property now," continues Mr. Feiker.

Information is available dealing with modernizing campaigns successfully conducted in several cities, including suggested publicity material. Inquiries may be directed to the Committee on Reconditioning, Remodeling, and Modernizing, United States Department of Commerce, Washington, D. C.

Philadelphia Masters Discuss Gas Appliance Sales

Members of the Philadelphia Master Plumbers Association met on April 11 with representatives of the Philadelphia Gas Works Co. to discuss the various features of the co-operative plan in existence between the two organizations in the matter of gas appliance sales.

H. M. Swongner and H. S. Christman, general sales supervisor, and assistant general sales manager, respectively, for the gas company addressed the gathering. Mr. Swongner spoke on salesmanship and Mr. Christman's talk covered the matter of competition from the electrical industry. T. E. Faust, district manager of the Chambers Mfg. Co., and C. E. Bartlett, president of Bartlett & Co., both pointed out the advantages of gas as a fuel in addressing the meeting.

Maney J. Feeney, president of the Philadelphia Master Plumbers Association, described the co-operative plan in existence between the National Association of Master Plumbers and the American Gas Association. Mr. Feeney remarked that as a result of this co-operative plan, the sale of gas appliances increased greatly in Boston, Mass., in 1931. Walter Raid, a member of the plumbers' committee appointed to meet with the gas company officials, described ways of overcoming the sales resistance offered by "price" prospects.

Washington State Masters Complete Plans for Annual Convention

The Association of Master Plumbers of the State of Washington will hold its annual convention this year at Seattle on Saturday, May 21. The one-day meeting, which will be held in the Metropolitan Builders Exhibit building, will be confined strictly to a discussion of business matters. R. D. Minkler of Tacoma, president of the state association, said in speaking of the convention plans: "We have arranged a program that will be very interesting and instructive and well worth the time for each and every master plumber to attend."

L. C. Sutherland of Walla Walla is state vice president; J. B. Moncur of Everett, state treasurer; and B. M. Richards of Everett, state secretary.

Chicago delegates to the first convention of the National Association of Master Plumbers, held in New York City in 1883. Back row, left to right: John J. Hablin, James S. Bassett, David S. Bain, Robert Griffith, Thomas Kelly and James McGinley. Seated: Thomas C. Boyd, J. J. Wade, Alex. W. Murray, Andrew Young, Joseph P. Roche and Martin Moylan

Chicago Master Plumbers to Celebrate 50th Anniversary

Elaborate plans are being made by the Plumbing Contractors' Association of Chicago for its Fiftieth Anniversary celebration on May 14, and a big turn-out of master plumbers from the Chicago metropolitan district is expected for the affair. In addition to the many master plumbers that are planning on being present, the affair will also be attended by a large number of manufacturers' and wholesalers' representatives from the Chicago district. The celebration will be in the form of a dinner-dance, and it will be held in the Gold Room of the Congress hotel. Joseph W. Cannon, Sr., a past president of both the Chicago and National associations, will act as toastmaster.

Among the prominent out-of-town guests who are expected to attend are P. W. Donoghue of Boston, Mass., president of the National Association of Master Plumbers; E. B. Kleine of Cincinnati, Ohio, vice president of the National association; and John J. Vogelpohl, also of Cincinnati, chairman of the National Scholarship Committee and past president of the National association.

The tentative program calls for a welcoming address by Henry Swade, president of the Chicago association, addresses by Henry P. Reger, president of the Illinois Master Plumbers Association, W. E. Clow, Sr., president of James B. Clow & Sons, Chicago, and the three above mentioned guests.

The first association of master plumbers formed in Chicago was in 1860, but this group soon disbanded. There is no record of any attempt to form another association until 1882, and the present association is the descendant of the association organized in that year.

Tell Congressional Committee Advantages of H. R. Bill 9975

Leaders of the National Association of Master Plumbers, the Heating and Piping Contractors National Association and the Electrical Guild of America are continuing their efforts to secure passage of H. R. Bill 9975, calling for the separation of contracts for the mechanical equipment on government work, which is now before Congress.

Various state and local associations of plumbing and heating contractors have already given their approval to the bill. Just recently, a delegation representing the three above mentioned organizations testified as to the advantages of the proposed law at a meeting in Washington, D. C., of the Committee on Public Buildings and Grounds of the House of Representatives. The delegation consisted of:

Heating and Piping Contractors National Association: Robert D. Williams, John H. Zink, William J. Olvany, Robert B. Miller, W. Stecher and Joseph C. Fitts.

National Association of Master Plumbers: P. W. Donoghue, president, Martin W. Utz and J. F. Donovan.

Electrical Guild of America: John W. Hooley and L. K. Comstock.

Alabama Convention Dates Announced

May 23 and 24 have been selected as the dates for the 1932 convention of the Alabama Association of Master Plumbers. The convention will be held at Birmingham, and headquarters will be at the Bankhead hotel. S. E. Scholze of Birmingham is president of the Alabama State Association.

Banker Tells Plumbers to "Advertise Low Prices"

Drafting a banker as guest speaker to chart the way "Back to Good Times," the Federation of Merchant Plumbers of Southern California held its regular monthly meeting on April 16 at the Elks' Temple, Los Angeles. The meeting, which was the final one before the forthcoming state convention in Oakland, saw 145 members and guests in attendance. The presiding officer was Howard Swihart, Pasadena, who will head the Federation for three months, succeeding Thomas Hogan.

Invitations, in letter form, were extended Federation members by the Ladies' Auxiliary of Oakland and John M. LaDieu, executive secretary of the state association, to attend the convention on May 23, 24 and 25.

Winners in the golf tournament held in the afternoon at Sunset Fields were awarded prizes of golf balls. Among members, low gross scores were turned in by Clyde Hickman, 86, and Herb Fielden, 88; low net by Frank Schilling, Jr., 70, and Frank Schilling, 71. Guests' winning scores were low gross, Mr. Cliff, 85, and Mr. Crandall, Mr. Werich and Ralph Dixon, each 95; low

Put on a Summer Drive!

THOUSANDS of homes throughout the country will be improved during the summer. New plumbing, automatic heat, new radiation, refrigeration and hundreds of smaller pieces of plumbing and heating equipment will be purchased.

The "Spend for the Home" drive will direct much of this business to you. The "Spend for the Home" material enables you to put on a summer drive for business at a very low cost.

DOMESTIC ENGINEERING has prepared, at great expense, a wealth of advertising and selling matter based upon this drive. You can use this matter any way you wish. However you use it, it will mean MORE BUSINESS to you.

It will enable you to tie up with the effort of thousands of other retailers serving the home; retailers who are now and have been using the "Spend for the Home" idea to increase their sales.

Equip yourself to put on a summer drive. Start now. Get your share of the remodeling dollars—and the new construction dollars—that will be spent.

Use the "Spend for the Home" cards, stickers, electrotypes in your show windows, store, on your truck, your automobile, in your newspaper ads, your sales letters. Watch each issue of DOMESTIC ENGINEERING for other selling ideas.

GET your supply of this material today. Here are the prices of the window cards or posters, size, 8¼x12 inches.

The prices of these cards are as follows:

10 cards for 50 cents
25 cards for 75 cents
50 cards for $1.25
100 cards for 2.00
500 cards for 9.00
1000 cards for 17.00

We cannot undertake to ship less than 10 of these cards.

Stickers of the slogan, in the same design as shown above but of 1¼ in. x 2 in. proportions are also available. Order these stickers. Use them on your letterheads, envelopes, billheads, business cards, etc., etc.

The prices of the stickers are as follows:

1000 stickers for $1.50
2000 stickers for 2.50
5000 stickers for 5.00

Get a supply of cards and stickers now.

Electrotypes of various sized cuts of the slogan are also available. These can be had for one and two-color printing. Electrotypes are priced as follows:

Electro for one-color printing, 2⅛x2⅛ in..... $0.35
Electro for two-color printing, 2⅛x2⅛ in..... .65
Electro for one-color printing, 3½x5½ in..... .55
Electro for two-color printing, 3½x5½ in..... 1.00
Electro for one-color printing, size approximately 8x12 in..... 2.50
Electro for two-color printing, size approximately 8x12 in..... 4.50

Order what you need to get in on this big drive now.

DOMESTIC ENGINEERING

1900 PRAIRIE AVE., CHICAGO

Here it is!

The NEW GLOCO No. 450

A lively leap year baby!

NO. 450, capacity 450 gallons, has been added to the Gloco line in response to a national demand for a Tank Heater of this capacity.

The bare announcement in our 1932 price list that the stork was on the way brought letters, telegrams and orders welcoming this new baby—even before it saw the light of day. But now you can inspect young Mr. 450 at your Wholesaler's, resplendent in his glistening red band, the famous mark of the Gloco family.

Like other Gloco models, 450 incorporates the exclusive Gloco feature of fine-mesh separate-shaking grates which burn the cheaper sizes of coal. It is tested to 300 pounds hydrostatic pressure and absolutely guaranteed to withstand a working pressure of 125 pounds. Supplied with plain, coppered, galvanized or brass water sections.

Complete data on the 46 sizes of Gloco Red Band Tank Heaters is contained in a new and attractive booklet just off the press. Why not write for it today?

EVINS F. GLORE & SON
Grand Central Terminal Building, New York City

"LOOK FOR THE RED BAND OF QUALITY"

TRADE MARK
GLOCO
RED BAND TANK HEATERS

net by Mr. Crandall, 73, and Ed Duke, 74. The blind bogey prizes were won by Dave Updegraff and Harry Shinn, each with 76. Thomas Hogan served as golf chairman.

Contrary to the usual custom, the ladies stayed to hear the speaker, Herman A. Nater, vice president of the Bank of America, because of the interest of his subject, "Back to Good Times." Mr. Nater urged the plumbers to advertise to prospective customers that now is the time to buy, when prices are low, probably the lowest they will be for years to come. He opined that the next trend would be that of the "marked-up tag." Success of the individual, he said, was measured to the degree to which the individual adapted himself to changed conditions, and cited examples. He looked to new industries to bring a new era of prosperity, much as the automobile industry did a decade ago. Decried by Mr. Nater was the fact that people today are too prone to discuss the concerns which are losing money rather than those which are either holding their own or forging ahead.

Date of the next Federation meeting was announced as June 11, and its scene as Merchant Plumbers Hall, Los Angeles.

Kentucky Convention Dates Changed

A change has been made in the dates for the annual convention of the Kentucky State Association of Master Plumbers, according to O. H. Mitzlaff of Louisville, state secretary. The new dates are May 16, 17 and 18, which means that the meeting will be held one week later than originally planned. The convention city is Frankfort, with the Capital hotel as headquarters.

Seeks Regulations for Oil Burner Installations in Quebec

Owing to the fire hazard in rural parts of the province of Quebec, Can., through amateur oil heating installations, members of the Oil Heating Association of the Montreal Board of Trade have asked the labor department of the Quebec legislature to create adequate safeguarding regulations. The association desires to insure that the installation of oil heating equipment should be undertaken only by experts.

Washington, D. C., Masters Hold 59th Annual Dinner-Dance

The 59th annual dinner-dance of the Master Plumbers Association, Inc., of the District of Columbia, was held on April 7, at The Shoreham hotel, in Washington.

Approximately 325 members and guests were in attendance, including P. W. Donoghue and J. Preston Perham, president and secretary, respectively, of the National Association of Master Plumbers, a delegation of fifty from the Maryland Master Plumbers Association, Dr. J. Frederick Hemple, assistant commissioner of health of Baltimore, Md., the plumbing inspection division of Washington and a representative of each local supply house. Mr. Donoghue and Mr. Perham made the trip from Boston by airplane.

W. N. Ward acted as toastmaster and introduced

the guests. Dancing was enjoyed between the courses during the dinner, and continued on until a late hour. A number of entertaining vaudeville acts were presented immediately after the dinner.

The committee in charge consisted of W. N. Ward, Jr., chairman, J. C. Flood, vice chairman, Thomas E. Clark, treasurer, David H. Alsop, Mrs. D. H. Alsop, Robert J. Barrett, Mrs. R. J. Barrett, Frank Bentley, Harry H. Brodie, Mrs. T. E. Clark, Maurice R. Colbert, George R. Eberly, Elmon J. Ewing, Mrs. J. C. Flood, Mrs. D. A. Fox, Joseph E. Heffron, H. E. Huntsberry, Joseph A. High, Mrs. J. A. High, William T. Gary, Mrs. W. L. Gary, Mrs. J. H. McCarthy, chairman, Frank A. Kerr, Fred W. Koehler, Hervey L. Lauder, Mrs. H. L. Lauder, Julius E. Leins, Mrs. J. E. Leins, J. Harry McCarthy, J. W. McCormack, William E. Miller, Patsy Monaco, Alfred R. McGonegal, Edwin C. Reed, John G. Schlosser, Harry A. Scroggins, Mrs. H. A. Scroggins, Arthur Snowden, Mrs. A. Snowden, Mrs. S. Tapp, Samuel Tapp and Mrs. W. N. Ward.

Elected President of Building Material Association

Fred W. High, master plumber of Fresno, Calif., has been elected president of the Fresno Building Material Dealers' Association. Mr. High has been active in master plumber association affairs for many years, in 1927 being elected president of the California Merchant Plumbers Association.

Must Apply for Scholarship Before May 16

The National Association of Master Plumbers announces that it will award two scholarships in plumbing, heating and ventilating at the Carnegie Institute of Technology, Pittsburgh, Pa., for the year 1932-33. This is in keeping with the practice which has been followed for the last several years so that there will always be eight scholarship students at the school.

John J. Vogelpohl

John J. Vogelpohl, chairman of the committee, reports that interest in the scholarships has been increasing with each succeeding year. The scholarship committee expects a large number of applications to be filed before the closing date, May 16. It is interesting to note that quite a few master plumbers are sending their sons through this course without applying for a scholarship. These boys are not separated from the scholarship students but have the same classes with them. This practice is to be commended as this course is the only one of its kind in the country.

At a meeting of the scholarship committee held in Pittsburgh, in January, in conjunction with the officials of the Carnegie Institute of Technology, the question as to the amount of money which the scholarships carry was raised. The committee was anxious to know how the $600 which the N. A. M. P. scholarship carries compares with other scholarships. The committee was agreebly surprised to learn that the N. A. M. P. scholar-

TOOK IT FROM 192

New radiators to be painted and their drying speeded by passing steam through. *One* Barnes & Jones trap was connected to each in turn. All told, it passed condensed water, core sand and scale from 192. Inspected the trap showed no sign of scoring — tested, it was still 100% tight.

Barnes & Jones traps and valves have the materials, workmanship and engineering to go in and *stay*. Put them on your next job. Bulletin?

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(4-30)

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Send, without obligation, your book describing Barnes & Jones Vapor and Vacuum Systems of Heating.

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379

Have you tried the *NEW* Kennedy Fig. 27 Bronze Gate Valve

Improved in every part

1. Handwheel
2. Stem
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6. Bonnet
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Greater Value for the same price

Heavier and stronger than before; sturdily and attractively proportioned; with high grade metal of remarkably smooth texture and clean flawless appearance throughout.

The new Kennedy Fig. 27 Standard Bronze Gate Valve for 125-lb. steam pressure or 175-lb. water pressure

Your dealer can supply you at standard market prices

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KENNEDY
VALVES-PIPE FITTINGS-FIRE HYDRANTS

ship is one of the most liberal there is. The school officials stated that they did not know of any other scholarship in any school which was worth more.

The scholarship awards this year will be based upon the same qualifications as in preceding years. These qualifications are, scholarship, need, personality, interest and intent. Any son of any member of the National association of Master Plumbers may apply for a scholarship by writing direct to the national office at Washington. Applications must be in early enough so that all records will reach the Carnegie Institute of Technology before May 16.

The scholarship committee in addition to Mr. Vogelpohl includes John J. Calnan, Chicago, Ill., P. W. Donoghue, Boston, Mass., George H. Drake, Buffalo, N. Y., and Richard J. Welch, Lowell, Mass.

Chicago Defeats Milwaukee in Bowling Match

Ninety-five master plumbers and supply salesman attended the bowling match between the Chicago and Milwaukee Master Plumbers' Association, held recently at the Elks' Club, Milwaukee, Wis., and watched the Chicago men defeat the Milwaukee group.

Fifty-one Chicago men were in attendance at the tournament, which was followed by a dinner at the Hotel Pfister. F. C. Kuetemeyer, of Milwaukee, acted as master of ceremonies.

Scores of Team No. 1 of the Milwaukee Master Plumbers' Association were as follows: William Holtzhauser, 597; Joseph Brah, 374; Herman Lepp, 464; F. Borth, 453; B. Wenninger, 550.

The Chicago scores: E. C. Wagner, 484; E. J. Young, 527; Paul Jacoby, 502; Henry Swade, 486; and P. Nelson, 490.

For the first time since the Chicago and Milwaukee bowling rivalry has started, salesmen of the corresponding cities bowled against each other, Chicago salesmen proving the better bowlers. Teams lined up as follows:

Milwaukee Salesmen's Team: Wolf, 498; Stock, 460; Rauser, 478; Luebke, 454; and Dopplmair, 514.

Chicago Salesmen's Team: Zimmer, 442; Skipper, 530; Nelson, 452; Sigmon, 486; and Hinoich, 561.

Southern Wisconsin Sanitary Club Re-organized

The Southern Wisconsin Sanitary Club, as a part of its recent reorganization plan, has elected new officers and has developed a program for future meetings that it is expected will increase the value of the association to the members. The association will, in the future, meet on the first Saturday of each month. Speakers will be selected in advance of each meeting, and committees will be appointed to handle the various types of activities. The territory covered includes all of southern Wisconsin, except the lake shore counties.

The new officers are R. T. Morrill of Beloit, president; E. E. Clemons of Janesville, vice president; Mr. Oleson of Elkhorn, secretary-treasurer. Dan Osborne of Beloit is the retiring president.

The next meeting of the association, which will be held on May 7, will be open to all master plumbers in the territory, whether members of the organization or not, and a large attendance is expected by those who are in charge of arrangements for the affair.

Left to right: Robert Allmon, Thomas J. Leary, W. H. Rainwater, William Turner, J. D. Fleming, C. P. Hensley, Harry Hartman, Thomas Mixter, William Mixter, Elmer Rowe, H. Porter Wilson, Ralph Olsen, J. J. McLeod, C. W. Higgins and Jack Camp. Photos taken at recent golf tournament of the Plumbing and Heating Club of San Francisco, held at Presidio Golf Club

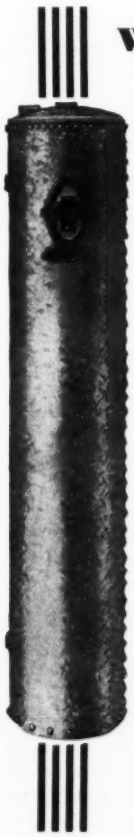
San Francisco Club Holds Golf Tournament

Brisk, salt air direct from the blue Pacific was the tonic urge that sent the golfing section of the Plumbing and Heating Club of San Francisco around the course of the celebrated Presidio Golf Club on the morning of April 7th, in the average time of three hours, flat. The course is laid out on the rolling hills immediately overlooking the Golden Gate. The morning's play developed William Turner as A-class winner, while B-class honors were divided between Ralph Olsen and Frank Mosher, whose net 74 tie will be played off at a subsequent tournament.

The tie remaining from the November tourney, between Morris Greenberg and Martin Doerr, was decided in favor of Mr. Doerr by a one-stroke margin. Charles Higgins won the blind bogey honors.

The following new rules are effective: (1) Henceforth there will be two classes only—A and B—with handicaps running from 0 to 19 and from 20 to 35. (2) A cocktail shaker (or equivalent) will be awarded the member winning five class prizes during the year. Each tournament will feature a blind bogey contest, open to members and guests. From now on, tournaments will be set for the first Thursday of the month. The scores were as follows:

	G.	H.	N.
Wilson	95	17	78
Rowe (guest)	104	..	104
Mixter, Wm. (g't)	82	..	82
Doerr	103	25	78
Camp	103	23	80
Higgins	104	22	82
Allmon	100	18	82
Mosher	96	22	74
Clark	94	17	77
Blair	98	16	82
Hensley (guest)	111	..	111
Leary	109	22	87
Turner	85	14	71
Mixter, Thos.	87	14	73
Seitz	95	18	77
McLeod	95	18	77
Olsen	109	35	74
Greenberg	101	22	79
Rainwater	104	18	86
O'Hair	97	15	82
Elliott	84	10	74
Hartman (guest)	112	..	112
Fleming (guest)	96	..	96



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PHILADELPHIA HAND MADE
RANGE BOILER

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SPECIALIZED GAS CONTROLS
THROUGHOUT THE WORLD TEEPLE SPECIALIZED STOKER CONTROLS OPERATE THE FAMOUS IRON FIREMAN . . . THE MACHINE THAT MADE COAL AN AUTOMATIC FUEL

Buffalo Association Endorses Bill on Separation of Contracts

W. Frank Clucas, president of the Master Plumbers' Association of Buffalo, N. Y., has addressed a communication to all members of the plumbing and heating industry in the Buffalo territory asking that they lend their support to House of Representatives Bill 9975 and Senate Bill 4342, which were recently introduced in Congress. These two bills call for the separation of plumbing, heating and electrical contracts from the general contract on government work.

In his letter, Mr. Clucas lists the representatives and senators from New York State, with the suggestion that members of the plumbing and heating industry solicit their support of the two bills.

Trenton Association Names Convention Delegates

The Master Plumbers Association of the City of Trenton, N. J., has named the following as delegates to the forthcoming New Jersey state convention:

John C. B. Wouters, William J. Lee, Daniel C. Black, James L. Bennett, William G. Royer, Howard H. Martindell, Thomas J. Kerwick, Joseph B. Reeve, Charles M. Fox, Jr., Frank R. Dunn, Anthony Dennish, John Mickels, Harry Greiner, John H. Conard, J. M. Heidweiler, Emil L. Pfleider, Fred L. Nitz and Charles MacQueen.

The following delegates have been named to the National convention to be held in New York City in June: Harry Greiner, John C. B. Wouters, Daniel Black, Emil L. Pfleider, Fred L. Nitz, Charles MacQueen, J. M. Heidweiler, William J. Lee, Charles M. Fox, Jr., Frank R. Dunn, William G. Royer, Joseph B. Reeve, Thomas J. Kerwick, John H. Conard, James L. Bennett, Anthony Dennish and John Mickels.

Plumbers Meeting in Ft. Atkinson, Wis.

Master, journeyman and apprentice plumbers of Fort Atkinson, Wis., and the surrounding territory, met recently in that city with representatives of the State Board of Health, the State Board of Vocational Education and the State Industrial Commission. Henry Pommerenck, itinerant instructor in plumbing in southern Wisconsin, was in charge.

The meeting was held for the purpose of giving to the plumbing industry information concerning the new state plumbing law, the rules and regulations of the State Board of Health governing the plumbing industry, rules of the State Industrial Commission governing apprenticeship in the plumbing industry, and to explain the work of state and local boards of vocational education.

New State Code Is Aim of Rhode Island Master Plumbers

A. A. Mistofsky

THE Rhode Island State Master Plumbers Association held its annual meeting and dinner on April 19 at the Dreyfus hotel, Providence, R. I.

Abraham A. Mistofsky of Providence was elected president of the association for the coming year. George Grimard of Woonsocket was elected vice president; John R. Magee of Bristol, treasurer, and George Reinsant of Woonsocket, clerk. Mr. Mistofsky has been president of the Providence, R. I., Master Plumbers Association for the past four years. He is one of the founders of the Rhode Island association. President Mistofsky indicated that he will ask the present board of directors to continue in office for another year.

John R. Magee, retiring president, gave a complete report of his administration during the past year. He emphasized the fact that he received strong support from his board of directors and committees during the year and thanked them for their co-operation. He outlined the work of the legislative committee, headed by Past President Maurice Burnside. Mr. Magee requested that all members strive to give even greater support during the coming year to the officers.

Mr. Burnside, in reporting on the effort to secure a new state code, stated that despite strong opposition the prospects are still bright for success at the next meeting of the Rhode Island state legislature. The other members of the legislative committee are Rual Renaud of Woonsocket, John M. Drysdale of Providence, John Magee of Bristol, and Frank Mereweather of Providence. It was voted to retain the committee in its entirety for the coming year.

J. Preston Perham of West Roxbury, Mass., secretary of the National Association of Master Plumbers, brought the greetings of the National association and of its president, P. W. Donoghue. Mr. Perham urged the affiliation of the Rhode Island State Master Plumbers to the National association. He explained that such an affiliation offered a tie-up with an organization of more than 12,000 members that carried with it a background of strength for each member. Mr. Perham outlined in

detail the advantages of affiliation with the National association.

Mr. Perham also discussed the direct-to-you situation and briefly outlined the results of the survey conducted in Cincinnati, Ohio, by the National Association of Master Plumbers in investigating the various phases of this problem.

A report on the findings of this survey have already been published in DOMESTIC ENGINEERING. Mr. Perham asked that the secretary of the Rhode Island State Association try to obtain figures from the members of the association showing the total volume of purchases made by each member during the year so as to prove that the members are important factors in the matter of purchasing power.

He also discussed the bill now before Congress calling for the separation of contracts on government building operations, and strongly urged his hearers to seek the support of their representatives in Congress for this legislation. He outlined the results of the gas appliance co-operation selling plan and urged his hearers to support this plan. Mr. Perham also told what is being done by the N. A. M. P. in co-operation with the electric utility companies. He emphasized the fact that electric water heater business belongs to the master plumber.

Treasurer A. A. Mistofsky gave his report, which was unanimously accepted, followed by the report of George Reinsant, clerk.

Applications for membership were read as coming from Adrian Gendran of W. Warwick, John H. Miller of Oakland Beach, and Cy Blaiser of Providence. These applications will be acted upon at the next regular meeting.

A communication was received from R. B. Wilson, Jr., of Newport, who was unable to attend the meeting. Retiring President Magee was presented with a beautiful electric clock as a token of esteem from the Rhode Island association, and as an expression of appreciation by the members for the valuable work he had done for the organization during his term of office.

Can You Answer These Questions?

(Continued from Page 62)

will multiply its absolute pressure in inverse proportion, or

60 lb. × 3 which is 180 lb., absolute

and changing this back to gauge pressure, which is 10 lb. less at 10,000 ft. elevation, gives

180 lb. absolute — 10.0 atmospheric pressure equals 170 lb. gauge pressure on tank.

These results may be summarized as follows:

Elevation of Tank	Initial Air Pressure Gauge	Initial Air Pressure Absolute	Final Tank Pressure Gauge	Final Tank Pressure Absolute
	Lb.	Lb.	Lb.	Lb.
Sea level	50	64.7	179.4	194.1
10,000 ft. elev.....	54.7	64.7	184.1	194.1
10,000 ft. elev.....	50	60	170.0	180.0

How Would You Answer This Question?

Does a discount of 50 per cent, 10 and 5 figure out to be greater than a discount of 5—10 and 50?

Answers based upon your experience, and suitable, will be paid for and published in the May 28 issue.

A fixture for bathrooms *that want to be modern* for contractors *that want modernizing business*

C 177-No Corwith *lavatory with design 40 trimmings and metal legs*

BUSINESS may stand still but tastes and living standards don't. If you want your business to go ahead, you can realize the advantage of keeping abreast of them.

Here is a fixture that will help you. If you stock it and use it to develop modernizing contracts, it will put you in touch with the business you want . . . with homes where the money as well as the will to modernize is present.

This Corwith lavatory appeals to people among such homes because its design is not only the most modern known to plumbing, but fits it to today's ensemble idea of bathroom decoration; its tapered recess provides for the installation of valves at a more convenient angle; its 4" box back furnishes a handy shelf for toilet articles; its raised metal spout prevents back siphonage and meets the requirements of progressive Health Departments.

See this lavatory at your Crane Branch. Go over its sales points with a Crane man. Its purpose, its appearance, its price — based on 1913 levels — and the Budget Plan under which it can be sold and installed combine to make such knowledge profitable.

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SHOWER
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The Haysco Diverting Valve
(Patented)
1. Ground joint valve seats on both Tub and Shower outlets.
2. Heavy wall lines with exposed parts heavily chrome plated. Brass throughout.
3. Renewable thread barrel packed with Jewett molded packing ring.
4. Large waterway areas to both Shower and Tub.
5. Just loosen the outside bonnet to adjust handle to correct slight variations in setting.
6. Choice of trim material.

AT a FLIP

Flip the handle and the Shower is connected—reverse the flip and the Tub is connected—that's how simply and positively the patented Haysco Diverting Valve works. Use it, Mr. Plumber, to get more Shower business this spring and summer.

With the Haysco Diverting Valve you eliminate two handles and the necessary piping. You make a neater, more efficient installation at lower cost and give your customer a really fine shower unit at a saving to him.

The cross section view above shows the valve action—the rugged and simple mechanism that assures never failing action. Send for further details and be prepared to recommend the Hays Diverting Valve.

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Program Announced for Heating and Piping Contractors' Convention

Among the many important features of the program prepared for the 43rd annual convention of the Heating and Piping Contractors National Association which is to be held in Detroit, Mich., May 16 to 18, is the report of a special committee on the separation of contracts.

This committee was formed to co-operate with the other mechanical trades in the building industry in bringing about federal legislation to separate the contractors for the three mechanical trades—heating, plumbing and electrical—from the general contract on all federal construction projects.

A bill for such separation, known as H. R. 9975, has now been introduced in the House of Representatives. The same bill as S4342 has been introduced in the Senate. Representatives of the three mechanical trades, including the members of the heating contractor's committee, have made several trips to Washington where they urged the passage of the bill. A full report of the developments in this important legislation will be given at the convention in Detroit.

Another important feature of the meeting will be the presentation of the labor survey. This survey is made semi-annually by the National association. For years labor conditions have been stable; but during the past six months many wage adjustments have been made or are pending.

This labor survey together with the Third Survey of the Heating Industry, which is being made by Joseph C. Fitts, National Secretary, for presentation at the convention, should prove of value to all the heating interests present.

Many other interesting and important subjects are scheduled for discussion. Air conditioning, trade promotion, certified heating and welding are the most prominent topics which will occupy the attention of the delegates.

An attractive social program has also been arranged by the convention committee of the Detroit local association, headed by George Freyn, chairman.

The convention program follows:

All Sessions Will Be Held at the Book-Cadillac Hotel.
Time Given is Eastern Daylight Saving.
Monday, May 16, 1932

Morning—9:00 A. M.

Registration of Delegates and Guests.
Board of Directors Meeting—Founders Room.

10:00 A. M.

Association Managers' and Secretaries' Conference.

Afternoon—2:00 P. M.

Opening Session—Everybody Welcome. Sing "America."
Address of Welcome—the Honorable Frank Murphy, Mayor of the City of Detroit.
Welcome to Detroit—George Freyn, Chairman of Detroit Convention Committee.
President's Address—Ray L. Spitzley.
Appointments of Convention Committees.
Report of Treasurer—J. Lawrence DeNeille.
Report of National Headquarters—Joseph C. Fitts, Secretary.
Report of Educational Department—S. Lewis Land, Educational Director.
Report of Credential Committee.
Convention Photograph.
Report of Membership Committee—J. Lawrence DeNeille, Chairman.

Address—"The Outlook for Business," by Col. James L. Walsh, Vice-President, Guardian Detroit Union Group.
Announcements by National and Local Associations.
Adjournment.

Evening—8:30 P. M.

Get-Together Party.

Tuesday, May 17, 1932

Morning—9:00 A. M.

Second Business Session—Call to order and announcements.
Papers and Secretaries of Local Associations.
Discussion of Papers.
Report of Committee on Standards—Richard A. Wolff, Chairman.
Report of Sub-Committee on Boiler Output—Harry M. Hart, Chairman.
Discussion of Reports.
"Air Conditioning"—Walter L. Fleisher.
Report of Committee on Certified Heating—C. P. Finke, Chairman.
Discussion of Report.
Report of Committee on Welding—John H. Zink, Chairman.
Discussion of Report.
Announcements.
Adjournment.

Afternoon—2:00 P. M.

Call to order and announcements.
Report of Committee on Separation of Contracts—Robert D. Williams, Chairman.
Discussion of Report.
Report of Committee on Trade Promotion—Walter Klie, Chairman.
Third Annual Survey of the Heating Industry—Joseph C. Fitts, Secretary.
Discussion on Survey.
Announcements.
Adjournment.

Evening—7:00 P. M.

Dinner-Dance.

Wednesday, May 18, 1932

Morning—9:00 A. M.

Final Business Session—Call to Order and Announcements.
Report of Convention Committees.
Election of Officers.
Unfinished Business.
New Business.
Adjournment Sine Die.

Afternoon—2:00 P. M.

Women's Bridge Party.
Men—Golf and Visits to Industrial Plants.

Convention Dates

May 2 and 3, 1932—FLORIDA—The annual convention of the Florida State Association of Master Plumbers and Heating Dealers, to be held at Tampa.

May 2 and 3, 1932—TENNESSEE—The annual convention of the Associated Master Plumbers of Tennessee, to be held in Memphis, with headquarters at the Peabody Hotel.

May 10 and 11, 1932—CONNECTICUT—The annual convention of the Connecticut Master Plumbers' Association, to be held at New Britain, with headquarters at the Hotel Burritt.

May 13 and 14, 1932—OREGON—The annual convention of the Oregon State Association of Master Plumbers, to be held in The Dalles, Ore.

May 16, 17 and 18, 1932—PENNSYLVANIA—The annual convention of the Pennsylvania State Association of Master Plumbers, to be held in Wilkes-Barre, with headquarters at the Mallow-Sterling Hotel.

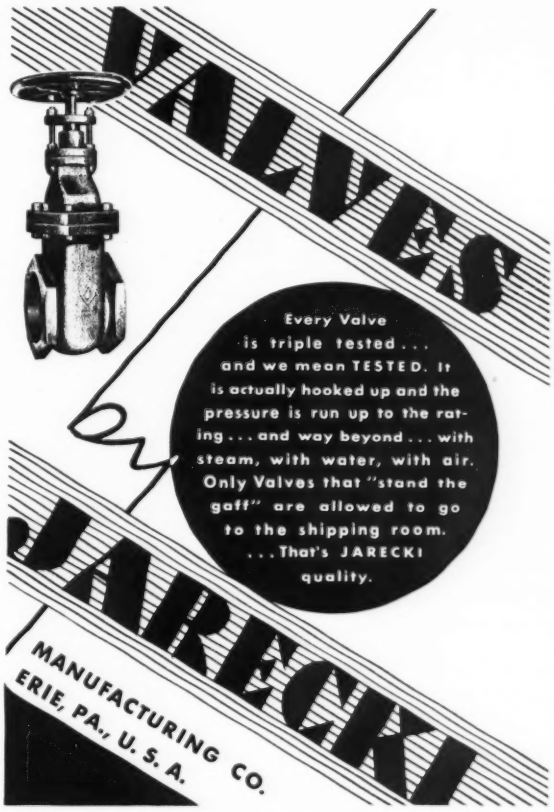
May 16, 17 and 18, 1932—H. & P. C. N. A.—The 43rd annual convention of the Heating and Piping Contractors National Association, to be held at Detroit, Mich., with headquarters at the Book-Cadillac Hotel.

May 16, 17 and 18, 1932—KENTUCKY—The annual convention of the Kentucky State Association of Master Plumbers, to be held at Frankfort.

May 21, 1932—WASHINGTON—The annual convention of the Association of Master Plumbers of the State of Washington, to be held in the Metropolitan Builders Exhibit Building, Seattle, Wash.

May 23 and 24, 1932—ALABAMA—The annual convention of the Alabama Association of Master Plumbers, to be held at Birmingham, with headquarters at the Bankhead hotel.

May 23 and 24, 1932—GEORGIA—The annual convention of the Georgia State Association of Master Plumbers, to be held at Albany, Ga., with headquarters at the Gordon Hotel.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Improved
PIPE CUTTERS

"Knife Blade Cutter Wheels of Vanadium Tool Steel"

ARMSTRONG BROS. "Saunders Type," "Barnes Type" or Heavy-Duty, each an improved tool with important refinements in design, better made of quality materials. Bodies are of Certified Malleable Iron, pins and rollers of *hardened* Tool Steel, Saunders and Heavy Duty types have Thrust Rods knurled for rapid adjustment, have *hardened* ends that bear on *hardened steel blocks* inserted in swinging arms. The ARMSTRONG BROS. Heavy Duty Cutter has a hardened steel nut to take up thrust and thread wear. All have ARMSTRONG BROS. Knife Blade Cutter Wheels of Vanadium Tool Steel, accurately machined, heat treated, oil tempered and cadmium plated. These are handier tools that cut faster, cut easier—"Better Pipe Tools," distinguished by the Arm-and-Hammer Trade Mark.

ARMSTRONG BROS. TOOL CO.
"The Tool Holder People"
323 N. Francisco Ave. CHICAGO, U. S. A.

Write for Catalog P-10

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PIPING HOT WATER

From this

COPPER COIL TANK HEATER

DELIVERS piping hot water at 150° for every domestic need, 24 hours per day. Built for long service with copper coil, bronze fittings, fire brick chamber, triangular grates, heavy shell in red vitreous enamel. Burns coal. Used also in combination hook-up with radiator to heat rooms or garage.

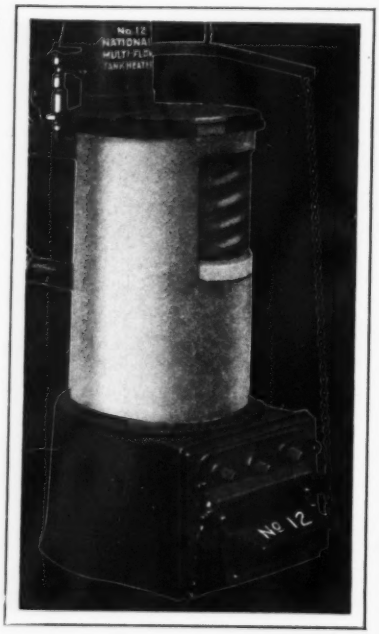
Aqua-Matic control tends fire 2 to 3 days with one fueling in average home.

Good profit in heater and installation. For prices and information write us or see your jobber.

SOLD BY THE LEADING JOBBERS

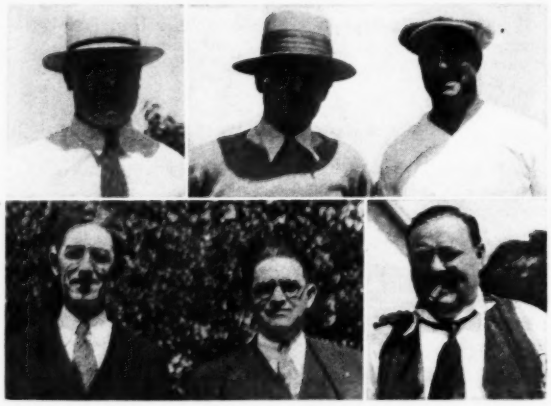
Note These Features:

Check Damper
Turn Damper
Regulator
Pressure Relief Valve
Feeds at Top
Large Copper Coil
Bronze Fittings
Fire Brick Combustion Chamber
Triangular Grates
Lift Draft
Enclosed Base



NATIONAL MULTI-FLOW TANK HEATER

THE NATIONAL PIPE BENDING CO.
Established 1883
174 River Street, New Haven, Conn.
BOSTON NEW YORK PHILADELPHIA
Instantaneous and Storage Heaters



Top row, left to right: H. C. Krueger, Kohler Co., Long Island, N. Y.; S. Margolies, Wender & Margolies, Brooklyn, N. Y.; A. R. Hansen, L. O. Koven & Bro., Inc., Jersey City, N. J. Bottom row: F. Brennan, manufacturers' agent, New York City; S. Ungerleider, S-H Sales Co., Inc., Long Island City, N. Y.; A. Ansel, Republic Pipe & Iron Corp., Brooklyn, N. Y. Photos taken at the annual outing of the Brooklyn and Long Island Plumbing Supply Credit Association, held recently at Lindenhurst, N. Y.

May 23, 24 and 25, 1932—CALIFORNIA—The 31st annual convention of the State Association of Master Plumbers of California, to be held at the Leamington Hotel, Oakland.

May 23-25, 1932—BOILER MANUFACTURERS—The annual convention of the American Boiler Manufacturers' Association, to be held in White Sulphur Springs, W. Va., with headquarters at the Greenbrier Hotel.

May 24 and 25, 1932—NEW JERSEY—The annual convention of the New Jersey Master Plumbers Association, to be held at Bon Air Lodge, Lake Hopatcong, N. J.

June 2 and 3, 1932—VIRGINIA—The annual convention of the Virginia Associated Plumbing and Heating Contractors, to be held at Alexandria, with headquarters at the George Mason Hotel.

June 8, 1932—NORTH CAROLINA—The annual convention of the North Carolina Association of Plumbing and Heating Contractors, to be held at Hendersonville.

June 14-17, 1932—N. D. H. A.—The annual convention of the National District Heating Association, to be held in Pittsburgh, Pa., with headquarters at the William Penn Hotel.

June 21, 22 and 23, 1932—N. A. M. P.—The 50th annual convention of the National Association of Master Plumbers, to be held in New York City, with headquarters at the Hotel Pennsylvania.

June 26-30, 1932—A. S. H. V. E.—The semi-annual meeting of the American Society of Heating and Ventilating Engineers, to be held in Milwaukee, Wis.

June 27-July 1, 1932—A.S.M.E.—The semi-annual meeting of the American Society of Mechanical Engineers, to be held at Bigwin, Canada.

COMING TRADE EVENTS

May 10, 1932—Third annual Fox River Valley Plumbing and Heating Educational Conference, to be held at the Hotel Athearn, Oshkosh, Wis.

May 14, 1932—The 50th Anniversary celebration dinner-dance of the Plumbing Contractors' Association of Chicago, to be held at the Congress Hotel.

May 17, 1932—Monthly tournament of Plumbing and Heating Trades Golf Association of New Jersey, to be held at Suburban Club.

June 11, 1932—Regular meeting of the Federation of Merchant Plumbers of Southern California, to be held at Merchant Plumbers Hall, Los Angeles.

June 14, 1932—Monthly tournament of Plumbing and Heating Trades Golf Association of New Jersey, to be held at Canoebrook Club.

June 20, 21, 22 and 23, 1932—Exposition of plumbing, heating and allied products, in connection with the 50th annual convention of the National Association of Master Plumbers in Madison Square Garden, New York City.

July 19, 1932—Monthly tournament of Plumbing and Heating Trades Golf Association of New Jersey, to be held at Metuchen Club.

Some Legal Questions

Answered by "The Judge"*

Can Partnership, of Which One Partner is a Member of the City Council, Legally Take Contract to Do Work for That City?

Editor DOMESTIC ENGINEERING:—A and B are in the plumbing business. B is a member of the city council. C and D, from outside the city, bid on some water mains and pumping equipment and sublet some of this work to F—and F is also outside the city.

C, D and F, in turn, employ A and B to do some of this work and buy some materials from them. Is there a law against this because B is a member of the city council?

Some extra work comes up, not in the original contract. The city council gives this work to A and B, on a time and material basis. Is there a law against that?

Illinois. G. M.

Answer:—The Revised Statutes of Illinois provide: "No officer shall be directly or indirectly interested in any contract, work or business of the city, or the sale of any article, the expense, price or consideration of which is paid from the treasury, or by any assessment levied by any act or ordinance. . . ."

Referring to the universal law throughout the United States that no city official can directly or indirectly be interested in a city contract, one of the text writers says that the reason for this general rule of public policy is that he who is entrusted with the business of others cannot be allowed to make such business an object of profit to himself. In other words, a man cannot serve two masters.

It might be possible that a member of a city's council, through his willingness to serve his city, would be able to do the work at cost or otherwise save the city money. But, because of the possibility that such a situation might be abused, the law says that no contract between an officer and the city in which he was elected or appointed, is valid. That means that the city's money cannot be legally paid out on such a contract, not merely that the city can refuse to pay if it wishes.

HOW A VALID CONTRACT WAS MADE INVALID

This rule is carried to such lengths that in one case a street railway franchise which was granted by a city council was held to be entirely void simply because a member of the council which granted the franchise was a stockholder in the street railway company.

The rule against such contracts has also been extended to cover cases in which the contract originally was valid, but later was invalidated because the original contractor had sub-let the contract to another firm of which a member of the city council was a partner. In this case you can see that no question was raised about the validity of the original contract, but the mere fact that a perfectly good contract was actually performed by a firm of which a councilman was a member, turned the contract into an invalid one.

The officers who are not allowed to have an interest in a city contract are members of city councils, boards of health, city physicians, judges, superintendents of public works, etc. The rule would probably be applied in any case in which a city officer or employee is involved who in any way might be held to have been in a position to influence the awarding of the contract or to have a duty to perform in connection with the work to be done.

To answer your second question first, in connection with the extra work, not in the original contract, it appears to be very certain that A and B cannot legally make a contract with the city, even though the work is to be done on a time and material basis. If A and B were to make such a contract and do the work, the city's money could not legally be paid for it. As in many other kinds of cases, this does not mean that such contracts are not sometimes made and paid for, but in such cases either the interest in the contracting firm which does the work, of the city official involved, is unknown, or it is one of the many kinds of graft that exist.

SUB-LETTING—A DIFFICULT QUESTION

Your first question is not as easily answered. One phase of it is certain, however, and that is: If there was an understanding between C, D and F, on the one side, and B on the other, prior to the award of the contract to C, D and F, that certain of the work and materials involved in the contract would be sub-let to A and B, the entire contract between the city and C, D and F would be invalid.

Then we come to the question whether, if the original contract was entered into between C, D and F, and the city, without any understanding between C, D and F and B, regarding the sub-letting to A and B, such a contract would be valid? Regardless of the actual facts in such a case, it would probably be hard to prove to a court, jury or private citizens, that such an agreement about sub-letting did not exist. The mere fact that a public official is interested in a city contract, at any stage of its progress, raises the very strong suspicion that an understanding of some sort, either express or understood, exists.

However, the courts have held that the sub-letting of a part of a contract which was valid originally, to a city official, does not make the contract invalid providing there was no understanding or agreement about the sub-letting, prior to the award of the original contract.

This latter rule does not hold true in cases in which the whole or a part of the contract is sub-let to a city official whose duties as such official conflict with his private interests as the contractor. In other words, a superintendent of public works could not legally contract

* Every effort is made to the end that these answers may be authoritative. However, we cannot assume any responsibility because of the very nature of the service, which is rendered without a personal interview.—Editor.

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Brass
FITTINGS

DEPENDABLE!

Phoenix Brass Fittings Corp.
IRVINGTON NEW JERSEY

THE C-D-S WATERPROOF GASKETS

C-D-S
GASKETS
for all
PURPOSES

Now you can have C-D-S Gaskets for all plumbing and heating uses. Closet spud, pump, hose, slip-joint, etc. Available waterproofed, oil-proofed or char-proofed (heat treated).

C-D-S Brass Closet Flange solves for all time the problem of pipe or bowl slippage. Requires no lead pouring. Easily and quickly installed.

Ask your jobber for C-D-S Gaskets and Flanges. Look for the black bordered package and C-D-S trade mark—your assurance of quality.

C-D-S PRODUCTS CORPORATION
General Sales Office: 230 N. Canal St., Chicago, Ill.
FACTORY: MUNCIE, INDIANA

READY TO USE — NO HEAT REQUIRED
LEAVES NO STAIN ON FLOOR

THE C-D-S WATERPROOF GASKETS

with the original contractor to do work upon which he has to pass judgment as such superintendent. Also, if a person is awarded a valid contract and thereafter becomes a city official, such contract will not thereby be rendered illegal if the appointment of the city official was not contemplated at the time the contract was awarded and his duties as such official do not conflict with his interests as the contractor.

It has also been held that where a city official enters into a contract with his city, and therefore the contract is invalid, he cannot make the contract valid by resigning his position.

Although this rule regarding sub-letting of a valid contract is clear in the statement of it, as a practical matter it probably would be difficult to prove that no understanding existed prior to the award of the contract. And even if such an understanding could not be proved, you can readily see what political capital could be made of such a situation at the next election.

Therefore, I should say that the answer to your first question would be, that theoretically and as a matter of legal principle, A and B's sub-contract, on the facts as stated, and provided that no understanding existed about the sub-contract prior to the award of the original contract, would be a good contract—but that if the facts became known, trouble would surely arise.

Tri-City League Holds Party

A dance and card party was sponsored by the Tri-City Plumbing and Heating Trade Development League at Moline, Ill., on April 14. The affair was attended by the League members and their friends.

Dancing and card games were enjoyed throughout the evening. Honors in cards went to the following: Bridge —Mrs. Kirk A. Journy, Rock Island; Mrs. Hugo Stange, Moline; C. C. Rosenfield, Rock Island; Hugh Murray, Moline. Five Hundred—Miss Margaret Bredar, Rock Island; Miss Mary Housen, Rock Island; W. A. Johnson, Moline; Alexander Batchelor, Moline.

Three acts of vaudeville were given as entertainment, and a buffet luncheon was served at the close of the evening. The luncheon and card games were in charge of the Rock Island and Moline Women's Auxiliary.

New Virginia Law Requires Competitive Bids on State Work

Senate Bill 231, fostered by the Builders' Exchange of Richmond, Va., and several allied organizations, became a law at the 1932 session of the Virginia Legislature. This bill requires state department heads to get competitive bids on all construction work over which they have control where the amount involved is $2,500 or more.

Death of H. W. Arthur

H. W. Arthur, master plumber of Kingston, Pa., died on April 7 at the Wilkes-Barre General hospital, in Wilkes-Barre, Pa. He had been engaged in business for a number of years as the Arthur Service Co., and was well known in plumbing circles in his city. Funeral services were held in Pittsburgh, with interment in Uniondale cemetery. He is survived by his widow, Mary H. Arthur.

Pennsylvania Advisory Board Granted Charter

A charter was granted this month for the Central Pennsylvania Advisory Board of the Plumbing and Heating Industry. The corporation is formed for the advancement and the promotion of the plumbing and heating industry, which includes the "establishment of cordial and helpful relations between the industry and the public."

Fifteen directors who compose a board of managers, are in control of the interests of the association and will supervise the future election of new members. They are Ralph W. Cummings, Lancaster; J. Walter Singmaster, Allentown; James H. Lutz, Jr., Harrisburg; E. G. Carpenter, York; Howard Fritz, Reading; Frank L. Wilson and M. D. Robinson, Philadelphia; H. M. Grossman, Lancaster; Walter C. Williams, Wilkes-Barre; R. A. Burlingame, Bethlehem; E. D. Swoyer, Allentown; J. B. Beirn, Reading; J. D. Johnson and W. A. Brecht, Philadelphia, and William S. Everts, Lancaster.

Big Meeting Held in Detroit Under Bureau Auspices

More than 700 plumbing and heating contractors in Detroit, Mich., and suburbs, wholesalers, manufacturers, and their representatives attended a meeting recently at Ionic Temple, Detroit. The meeting was called by the Plumbing and Heating Industries Bureau for the purpose of discussing some of the problems confronting all branches of the industries in Detroit.

Speakers were E. B. Kleine of Cincinnati, Ohio, vice president of the National Association of Master Plumbers; John J. Vogelpohl of Cincinnati, a past president of the National association; William J. Spillane, president of the Central Supply Association; W. A. Johnson of Kalamazoo, secretary of the Michigan State Association of Plumbing and Heating Dealers; and Norman J. Radder, publicity director of the Plumbing and Heating Industries Bureau. Joseph G. Hildebrand, secretary-manager of the Bureau, was chairman of the meeting.

Mr. Kleine in his talk traced the history and the achievements of the National Association of Master Plumbers. He declared that the National association is not only the largest of the master craftsmen's organizations in the country, but also one of the most active in being ever on the alert to look after the welfare of its members.

"Throughout the fifty years of its existence, there has never been a man in any official capacity who has collected one cent of salary as an officer of the National Association of Master Plumbers," Mr. Kleine declared.

The speaker emphasized particularly the work of the

Left to right: Ray T. Craft, Lake Charles; A. H. Grimaldi, New Orleans; J. Frank McClellan, Monroe, and J. P. Davis, Jackson, all directors of Louisiana-Mississippi Association. Photos taken at the meeting of the Louisiana-Mississippi Association of Plumbing and Heating Dealers, held at Jackson

This NEW Catalog Tells You...

Full information about two new Weis developments for shower bath installations, plus a complete presentation of the Weisway and Weistall cabinets, will be found in Catalog 32, a copy of which may be had for the asking.

This new catalog should be of great assistance to you in turning remodeling prospects into sales. Color presentations portray the beauty of Weis equipment, and the thorough-going explanation of construction, amply illustrated, provides all the technical information any prospect can want. Code words for telegraphic use, and roughing in suggestions are included also.

No enterprising master plumber who is fighting for business can afford to be without this catalog constantly at hand. Ask your jobber, or write to us, naming your jobber, and a copy will be sent you promptly and without cost or obligation.

HENRY

Established **WEIS** *1876*

MANUFACTURING CO., INC.

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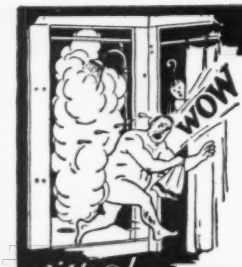
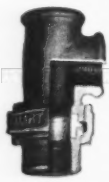


Stop this!

Eliminate those unexpected "shots" of hot and cold water in shower baths. Stop the time wasted in trying to get water at the right temperature. Install Powers Mixers. Write for 20-page book.

THE POWERS REGULATOR CO.
2716 Greenview Ave., Chicago
Offices in 37 Cities

With The
POWERS SHOWER MIXER



Look inside the DART!

If you wonder why DART UNIONS give such splendid service on pipe lines, take a look inside of one. One look will reveal it all. The TWO BRONZE TO BRONZE SEATS, carefully ground and accurately machined assure a maximum of service by eliminating the possibility of leaks, rust and corrosion at the joint. Pipe ends and nut are made of heavy air refined Malleable Iron.

E. M. DART MFG. CO.
Providence, R. I., U.S.A.
Sales Agents: The Fairbanks Co. New York and all branches
Canadian Factory: Dart Union Co., Ltd., Toronto

Fig. 19411 Taber Midget Sump Pump

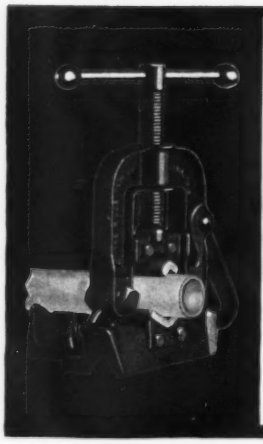
It works . . . . . when needed most

After heavy rain-storms there is an increased demand for Taber automatic Midget Sump Pumps. Frequently they replace "low price" cellar drainers inadequately motored.

Why wait for a peak load to tell whether the pump will work? Avoid troublesome, profitless service calls . . . install Taber first. The owner of any sump pump expects "Dry Cellar Insurance." He gets it with a Taber Midget.

Bulletin and prices on request. Also see Page 923 Domestic Engineering Catalog.

TABER
TABER PUMP CO *Est 1859*
290 Elm Street, Buffalo, New York



RIDGID VISES

NO-MAR Jaws on RIDGID Yoke Vises . . . Pipe rests and pipe benders on *all* RIDGID Vises . . . Strength enough to stand many years of hard work and abuse. At your Jobber's. Made also in stand, Post chain and yoke type, all sizes.

THE RIDGE TOOL CO.
Elyria Ohio

national and local associations in obtaining code legislation and the educational activities of the association.

"Education of its membership in sound business methods has always been one of the chief objects of the national association," Mr. Kleine said. "This work has been carried on largely through the medium of the Plumbing and Heating Industries Bureau." He said that one of the outstanding achievements of the Bureau is the development of its bookkeeping and cost accounting services.

Mr. Kleine also told about the important work which the National association is carrying on now in an effort to secure the passage of bill No. H. R. 9975 providing for the separation of plumbing, heating, electrical, and ventilating contracts on all government work.

Mr. Vogelpohl, speaking on the basis of his many years of experience as a contractor and his quarter of a century of association with the National Association of Master Plumbers, urged the need for strong local associations with state and national affiliations.

"To save this industry for ourselves as well as for those who will come after us we must be banded together in local associations with strong state and national affiliations," Mr. Vogelpohl said.

"If the National Association of Master Plumbers were to pass out of existence, I am fearful of what would happen. This would be a calamity for the public as well as for ourselves. The public needs the security and protection which the ethics of the national association provide."

Mr. Radder declared that there is a direct relationship between a contractor's profits and his use of Bureau services.

Mr. Spillane stated emphatically that he believes the present method of distribution from manufacturer to wholesaler to contractor should be preserved and that he is opposed to direct sales by wholesalers.

Standard Published for Cast Iron Pipe Flanges and Flanged Fittings

The American Standards Association, New York City, has announced the publication by the American Society of Mechanical Engineers of the American standard for cast iron pipe flanges and flanged fittings for maximum non-shock working hydraulic pressure of 800 lb. per sq. in. (gage) at ordinary air temperatures. The standard was prepared by the committee on pipe flanges and fittings under the sponsorship of the American Society of Mechanical Engineers, the Heating and Piping Contractors National Association, and the Manufacturers' Standardization Society of the Valve and Fittings Industry.

Death of Robert P. Barton

Robert P. Barton, master plumber of Joplin, Mo., died on April 12 following an operation for appendicitis. He was in his 46th year at the time of his death. Mr. Barton was a member of the contracting firm of Barton & Law and had been connected with the plumbing business in Joplin for twenty-five years. He was treasurer of the Joplin Master Plumbers Association. He is survived by his widow, three children, his father, a brother and a sister. The funeral services were attended by representatives from all branches of the industry.

New Trade Literature

Folder Describes Air Conditioning Radiator

Utica Radiator Corporation of Utica, N. Y., has issued a folder describing and illustrating its air conditioning radiator which is designed to provide moist air in proportion to the amount of heat required. It is made in seven different heights and four different widths, offering a combination of eighteen different sizes from which proper selection can be made. The folder stresses the two points that this radiator furnishes the required amount of heat and replenishes the air with moisture.

Folder on Cast Iron Fittings

J. A. Zurn Mfg. Co. of Erie, Pa., has issued a four-page folder, 5¾x10 in. in size, illustrating and describing some of its cast iron fittings, such as cleanouts for cast iron pipe, cleanout plugs with wall plate and screw, cesspools, sediment drains, shower drains, combined drain and trap, floor drains, roof drains, manhole frames and covers, roof flashing fittings, floor or closet flanges, resealing traps, back water traps, etc.

Booklet About Filtered Air

American Air Filter Co., Inc., of Louisville, Ky., has just published a neat booklet under the title of "Filtered Air—Its Importance in Building Ventilation and Air Conditioning." The booklet, which consists of 16 pages, 8½x11 in., is well illustrated, showing outstanding examples of each type of building in which air filters are now in service and at the same time in as many different cities as was practical with the limited space. Among the subjects discussed are the following: 1. Why filter air? 2. The health value of filtered air—in schools and colleges, hospitals and public buildings, theaters and auditoriums, banks and residences. 3. The need for filtered air in building ventilation and air conditioning. 4. The economy of filtered air.

Concerning Automatic Humidifying Units

Frank E. Woodward Co. of Boston, Mass., has issued a 4-page folder, 8½x11 in., illustrating and describing its line of concealed heating and automatic humidifying units designed to meet the demand for air conditioning in the home and office. These units are made for use in connection with steam, vapor and hot water heating systems.

Announcing Combination Storage Tank and Indirect Heater

Pennsylvania Range Boiler Co. of Philadelphia has issued a two-page circular, 8½x11 in., with illustrations and descriptions of its line of tanks with the submerged type of indirect storage water heaters, designed to meet the demand for a storage tank and indirect heater combined in one unit with removable coil. The tanks are made with capacities of 40, 66, 82, 120, 144, 180 and 220 gallons. These units can be used in combination with steam or hot water heating boilers.

Air Conditioning Equipment

Frigidaire Corporation of Dayton, Ohio, has issued three neat folders, each of them 18 x 24 in. in size, containing illustrations and descriptions of its air conditioning equipment. Several models of air conditioners are pictured, and their operation is described as changing hot, humid air into an atmosphere that is cool and refreshing, bringing relief from excessive mid-summer heat. This result is brought about by three operations as follows: 1. The warm room air is drawn in and passed over the chilled

"You sure can get a grip on these large faces"

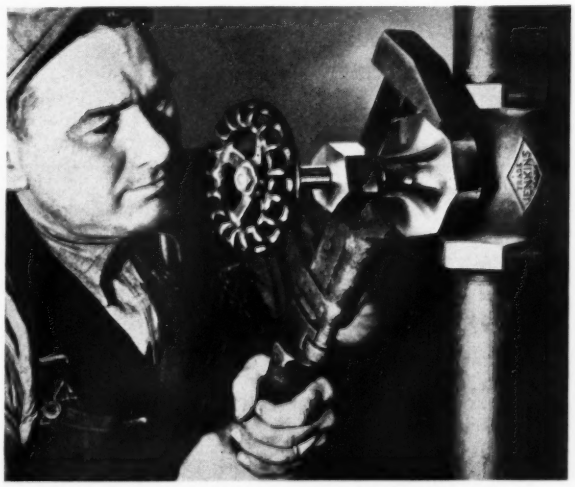


Fig. 106-A Jenkins Standard Bronze Globe Valve

Jenkins
BRONZE IRON STEEL
VALVES
Since 1864

THIS VALVE
saves your time

Just look at the size of those bonnet faces that afford a good grip for the wrench, making removal quick, easy, safe. Another big time-saver of Fig. 106-A Jenkins Bronze Globe Valve is the clean-cut, accurate threading of bonnet and body.

Husky *one-piece* screw-over bonnet, slip-on stay-on disc holder, Jenkins Renewable Disc, and extra-deep stuffing box are additional advantages.

Ask your supply house about this time-saving valve or write for Form 141. Made in globe, angle, cross and check patterns, screwed or flanged.

JENKINS BROS.

80 White St., New York, N. Y., 510 Main St., Bridgeport, Conn., 524 Atlantic Avenue, Boston, Mass., 133 No. Seventh St., Philadelphia, Pa., 646 Washington Blvd., Chicago, Ill.

JENKINS VALVES ARE ALWAYS MARKED WITH THE "DIAMOND"

THE KAINER PRESSURE GOVERNOR
The KAINER
PRESSURE GOVERNOR
for Hot Water Heating Systems
—Reduces the cost of a hot water layout.
—Eliminates expansion tank and fittings (with its danger of freezing and overflowing).
—Simplifies installation—makes a better job.
—Saves your time and your customers' money.
—Increases your profits and builds good will.
Write us for full information.
KAINER & COMPANY
CHICAGO
761-771 MATHER STREET
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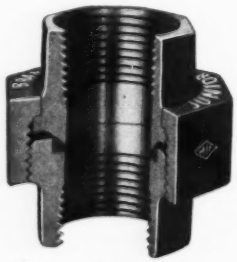
The M. I. F. Trade Mark on each fitting is for your protection



BRANFORD UNIONS

BRASS TO IRON SEATS • BRANFORD 350* W. P. • BRANFORD JR. 250* W. P.

MALLEABLE IRON FITTINGS

STANDARD MALLEABLE • EXTRA-HEAVY MALLEABLE • RAILING FITTINGS • PLUGS AND BUSHINGS

COPPER TUBE FITTINGS

MALLEABLE IRON FITTINGS CO.
BRANFORD • CONNECTICUT

surfaces of a cooling coil, which lowers the temperature. 2. Through a process of condensation, the air conditioner reduces the humidity of the air, eliminating excessive moisture. 3. After the air has given up heat and moisture, it is circulated through the room by means of a specially designed fan, giving air circulation without drafts. But, says one of these folders, the cooling feature just described is but one function of these air conditioners. Several models are made which, in connection with hot water or steam heating systems, will heat, humidify and circulate air in the winter, in addition to cooling, dehumidifying and circulating air in the summer.

Announcing a New Packing in Coils

Metalastic, Inc., Union City, N. J., has just issued an 8-page pamphlet announcing a new packing compound, which is furnished in coils and made for any type of packing service such as superheated steam, saturated steam, hydraulic machinery, air, gases, gasoline, oil, sulphuric acid, nitric acid, brine, hot and cold water, etc. This new packing is available in fourteen sizes from 3/16 in. to 1 in.

Announcing New Compression Stop and Waste Valves

Ohio Brass Company of Mansfield, Ohio, has just issued a folder announcing its new compression stop and waste valves. In these valves the waste outlet has been transferred to the center of the body, reducing the possibility of the outlet hole becoming clogged by pipe dope or rusting, and eliminating the possibility of an under-sized threaded pipe being screwed in far enough to partially obstruct the outlet.

Folder on Temperature and Pressure Relief Valve

The Patrol Valve Co. of Cleveland, Ohio, has issued a folder describing and illustrating its temperature and pressure relief valve for domestic hot water supply systems. This valve is designed to relieve water from domestic hot water supply systems when either the temperature or the pressure exceeds a predetermined setting, the standard settings being 212 degrees and 140 pounds.

Book Review

"The Competitive Position of Coal in the United States," 288 pages with charts and tables; cloth bound; published by the National Industrial Conference Board, Inc., New York.

Competition has taken on a new meaning in the past few years. Instead of bringing up a picture only of the man across the street who was carrying on a business similar to one's own, competition now portrays to many a struggle of industries rather than individuals.

The National Industrial Conference Board, Inc., has been carrying forward studies of international economic problems. The results have been disclosed previously by its book on the new competitive thinking, covering such subjects as oil, world energy, world economic conditions and the world business depression. It has just published another book telling of "The Competitive Position of Coal in the United States."

Excess productive capacity, increased competition from other fuels and better utilization of fuels have all united to reduce the comparative importance of coal as a source of world energy. This new book in its 288 pages covers thoroughly the factors which have led to the changes in coal's importance, dissects the changes by classes of consumers, runs over separately the anthracite and bituminous problems and indicates direction for probable solution.

The book is supplied by "Domestic Engineering" to its readers at the publisher's price of $3.

Business Changes

New York City—William F. May, E. M. Steinmetz and Ashton A. Marshall have disposed of their interests in the Parker-May Heating Corporation, heating engineering firm, at 460 Mott avenue.

Askov, Minn.—The plumbing, heating and implement business of the Askov Motor Co., this city, has been purchased by J. R. Petersen, who has been managing that branch of the business.

San Francisco, Calif.—E. D. Rosenbaum, 115½ Waverly, has moved his plumbing and heating business to 821 Washington street.

Fergus Falls, Minn.—Oleen Olson has purchased the interest of Fred J. Ierien in the Fergus Plumbing & Heating Co., and will continue the business alone, under the same name.

Marshalltown, Ia.—The M. F. Banzhaf estate has sold its plumbing and heating business to two former employes, Frank Narey and E. A. Smith, who will continue operation of the business at 130 West Main street.

San Francisco, Calif.—William Carmichael, engaged in the plumbing and heating business in this city, has moved from 800 London to 1281 31st avenue.

San Francisco, Calif.—Richard Fredrickson has moved his plumbing and heating business from 1317 9th avenue to 750 Irving.

Fairmont, Minn.—Walter Krost, engaged in the plumbing and heating contracting business, has moved to larger quarters in the Tanner building.

Carthage, Mo.—The Stanton Plumbing Co. has moved into new quarters in the D. T. Ward building, in this city.

Athens, Tenn.—Work was started recently on the new building for the Athens Plumbing and Heating Co. The new building will be of brick construction and will be modern in every respect.

New Contractors and Incorporations

Russellville, Ark.—The Oates Plumbing Co. is the name of a newly-established plumbing contracting firm in this city. The company is located at 313 West B street.

New York City—The firm of H. Burdett Cleveland, Inc., has been chartered, with a capital of $40,000, to establish and operate a general plumbing business in Manhattan. The new concern is represented by J. E. Finegan, 5 Beekman street.

Cottonwood, Ida.—E. S. Stoddard has engaged in the plumbing and heating business here.

Fairvale, Ore.—The Atlas Plumbing & Heating Co. has been formed here by E. C. and E. Urbigkeit.

Charles City, Ia.—Earl Schmidt has engaged in the plumbing and heating business at 119 N. Main street.

Newark, N. J.—Viviani, Inc., has been organized, with a capital of 1,000 shares of no par common stock, to establish and operate a general plumbing and heating business. A. L. Padula, local attorney, represents the new corporation.

Newark, N. J.—The Associated Plumbing and Heating Company has been organized and incorporated, with a capital of $125,000, to establish and operate a plumbing and heating engineering and contracting business. The

The above slide can be adjusted to fit tray or sink by loosening bolt shown by arrow.
Thread three inches long so the Leg can be made the height wanted.

REDLON
SINK AND TRAY LEG

Here is a self-contained sink and tray leg that is adjustable all ways. They will cut installation time in half and the amount of trouble they save you in ordering alone, will well repay you for trying them. Simply state whether they are to be used for sink or tray.

Also write us for detailed information regarding the complete Redlon line which consists also of adjustable roof flanges, adjustable boiler stands, adjustable tub traps and closet fittings.

Territories available for Manufacturers Representatives

O. M. REDLON
COR. FRONT & FERRY STS. BATH, ME.

CADWELL
NO. 10 AIR VALVES

THE quick action of CADWELL No. 10 Air Valves in preventing the escape of steam and allowing the exhaustion of air from the radiator and the dependability of this action, are the major reasons for their popularity with the most discriminating of heating contractors. If you are finding some heating system particularly difficult, due to the non-heating of radiators, try CADWELL No. 10 Air Valves.

Get them from your jobber.

The BEATON & CADWELL MFG. CO.
Established 1894
NEW BRITAIN, CONN.

BRASS & COPPER NIPPLES » » »

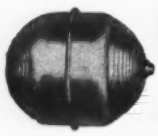
Accuracy in threading Brass and Copper Pipe is exceedingly important. The standard for Challenge is one turn over or under when checked with a Briggs gauge.

First quality selected pipe only is used.

Challenge Nipples insure a good job with less labor and no worry.

Write for sample Challenge Nipple and name of nearest dealer.

FRICK-REID SUPPLY CORPORATION
NIPPLE DIVISION
117 Sandusky St., N. S., Pittsburgh, Pa.



4'x5' Oval Float

NO-SOL COPPER FLOATS

No-Sol Floats incorporate all features necessary to the satisfactory performance of a tank float.

Each float is individually tested and guaranteed.

INCORPORATED 1907

The AYLING & REICHERT CO.
3047 N. Erie St. Toledo, Ohio

5" Round Float

See the complete HINDLEY Line of Plumbers' Specialties on page 851 of the Plumbing and Heating Catalog.

HINDLEY MANUFACTURING CO., Valley Falls, R. I.

"EBCO" Dishwashing SINK
with built-in dishpan

Let us tell you how to turn idle hours into extra profits. Send for copy of "A New Selling Slant". It does not obligate you in any way.

The D. A. EBINGER SANITARY MANUFACTURING CO.
411 West Town Street
Columbus, Ohio

new concern is represented by David M. Kirsch, local attorney.

New York City—With a capital of 200 shares of no par common stock, the Axel Plumbing and Heating Corp. has been chartered to establish and operate a plumbing and heating engineering and contracting business in the Bronx. I. Akselrod, 19 Rector street, represents the new concern.

Walker, Minn.—Edward Oehler has opened up a plumbing business here.

Hartford, Conn.—The Eastern Heating Company, recently incorporated, will deal in oil and electric heaters and equipment. Max, Rudolph and Jacob Feinberg are the principals.

Manitowoc, Wis.—Levendusky-Theisen Co. has been formed to conduct a plumbing, heating and gas fitting business here. The firm is capitalized with 200 shares at $100 each. The incorporators are B. Levendusky, E. Theisen and I. J. Marsh. The company has been operated as a partnership for some time, engaging in plumbing, heating, ventilating, drain-laying and kindred work.

San Francisco, Calif.—M. Gotelli has engaged in the plumbing and heating business at 291 10th avenue.

Ann Arbor, Mich.—Faust & Co., Inc., has been chartered to engage in the heating and air conditioning business, with a capital of $7,000.

Fort Smith, Ark.—A new plumbing and heating shop

Left to right: W. Stecher, secretary, Washington, D. C., association; H. D. Allen, Chicago; E. E. Ellis, Winnetka, Ill.; A. A. Peterson, Chicago; J. E. Strong, St. Louis, Mo. Photos taken at the annual convention of the Heating and Piping Contractors National Association, which was held at Louisville

has been opened in this city, at 1315 Dodson street. The proprietor is Henry Quoss.

Brooklyn, N. Y.—With a nominal capital of $1,000, the firm of Joseph A. Hogan, Inc., has been chartered to engage in the plumbing and heating engineering and contracting business. J. O. Driscoll, 130 Clinton street, represents the new concern.

Hot Springs, Ark.—David H. Keck and Harry B. Rankin have established a plumbing and heating business at 210 Third street, in this city. The firm name is Keck & Rankin Plumbing Co.

Brooklyn, N. Y.—The Rex Plumbing and Heating Corp. has been organized, with a capital of $5,000, to establish and operate a plumbing and heating engineering and contracting business. I. Ehrilich, 697 Rockaway avenue, represents the new concern.

Rochester, N. Y.—With a capital of 100 shares of common stock, the firm of Cass and Loysen, Inc., has been organized, to establish and operate a plumbing engineering and contracting business. M. I. Tomanovich, local attorney, represents the new concern.

New York City—Capitalized at $10,000, the Saulmin Plumbing Company has been organized and incorporated, to establish and operate a plumbing engineering and contracting business. The new concern is represented by P. Wellins, 521 Fifth avenue.

WHAT WOMEN ARE DOING

BY DOROTHY EDWARDS

New York Auxiliary Holds Annual Convention

At the annual convention of the New York State Women's Auxiliary, held at the Hotel Pennsylvania, New York City, April 6, Mrs. J. O. Stapf of Albany was re-elected president. Mrs. Grace O'Callahan, Manhattan, was elected first vice president; Mrs. G. T. Bosch, Brooklyn, second vice president; Mrs. William Kroepke, Bronx, third vice president; and Mrs. William Metcalf, Rockville Center, treasurer. Mrs. Stapf appointed Mrs. W. P. Ryan of Albany as secretary, and Mrs. H. J. Noord of Albany as corresponding secretary.

Matthew J. Kennedy, president of the Greater New York Association of Master Plumbers, addressed the auxiliary convention, as did Fergus McLoughlin, past president of the New York State Association of Master Plumbers. The delegates to the national convention were named, these numbering nine in all and being the presidents of the local auxiliaries of Syracuse, Albany, Buffalo, Nassau County and the five boroughs of Manhattan.

After the usual business proceedings had been dispensed with, Mrs. Stapf was presented with a beautiful black jet evening bag as token of esteem from the ladies of New York State. The presentation was made by Mrs. Matthew J. Kennedy of Brooklyn.

Dayton Auxiliary Elects New Officers

The Dayton, Ohio, Ladies Auxiliary gave a successful card party recently at The Chimney Corner, in that city. The success of this party, the second affair of its kind to be held by the group, was due largely to the efforts of Mrs. Henry S. Blank, chairman, Mrs. Roland Foerste and Mrs. Carl Spatz of the entertainment committee, as well as Mr. Colvert, chairman of the master plumbers' entertainment committee.

At a recent business meeting, Mrs. Walter C. Willhelm was elected president; Mrs. Henry Saunders, first vice president; Mrs. Charles Park, second vice president; Mrs. E. T. Metcalf, secretary; and Mrs. Frank Schmackers, treasurer. Mrs. William Haas continues as parliamentarian. Cards were enjoyed following the business session.

Florida Plans for State Convention

The Florida Division, Women's Auxiliary, will hold its eighth annual convention in Tampa, Fla., on May 2 and 3. The meetings of the convention will be held at the Master Plumbers' Association Home, 107 West Frances avenue. A written report of the year's work which may be kept on file for reference should be brought to the convention by the president of each local, according to Mrs. Frank Williams, state president. The ladies will attend the opening session of the master plumbers' meeting, on Monday.

A report of all new members must be made at the convention by auxiliaries competing for the membership prize offered by the state division as per bulletin No. 1 issued from the State Division office September 1, 1931.

Massachusetts Auxiliary Holds Annual Convention

The Massachusetts State Women's Auxiliary held its annual convention on April 5 at the Hotel Statler, Boston. Mrs. H. L. Rose, Jr., of Cambridge, was elected president for the ensuing year. Mrs. Neil Jepsen, of Newton, was elected vice president; Mrs. Joseph Reilly, New Bedford, treasurer; Mrs. James A. Cotter, Boston, secretary. It was voted that the new president appoint her board of directors at a later date. Retiring president, Mrs. John Murphy, New Bedford, expressed appreciation for the loyal support and co-operation received during her term. She received a gift from the members, which was presented by Mrs. C. D. Kieser of Newton.

Mrs. H. L. Rose, Jr., of Cambridge, newly elected president of Massachusetts State Auxiliary

Several resolutions were offered, but at the request of Mrs. Perham they were to be read at the meeting and returned to the National office for consideration at the National meeting in New York City in June. These resolutions will be published in "Domestic Engineering" at a later date, as soon as released by the National president.

Mrs. J. Preston Perham of West Roxbury, Mass., National president, was unable to attend due to illness. Mrs. H. L. Rose, upon accepting the presidency, expressed her appreciation of the honor bestowed upon her. She said she entered the office realizing the many duties it incurs, and assured the members that she will carry on to the best of her ability.

Philadelphia Auxiliary Celebrates Ninth Anniversary

The Philadelphia, Pa., Women's Auxiliary celebrated its ninth anniversary with a luncheon on April 5th, with 44 persons attending. The twelve members of the Suburban auxiliary were guests at this affair. Mrs. George Diggins, president of the Philadelphia auxiliary, cut the birthday cake, which was decorated with nine candles. Short talks were made by the president of the Suburban auxiliary, Mrs. Ross Baldwin, and each of the former presidents of the Philadelphia auxiliary. Mrs. Diggins was presented with an automatic pencil. Cards and other games were enjoyed.

The committee on arrangements was composed of Mrs. John Seibel, chairlady; Mrs. Eugene Quindlen, Sr., Mrs. Anton Jakoby, and Miss Violet G. Jakoby. Mrs. George Hicks served as the welcoming committee.

In actual comparison, Fretz-Moon Pipe bends 25% easier than ordinary steel pipe. It also bends freely to any requirement without distortion, flattening at the bend, opening at the weld or scaling of the protecting galvanized coating that insures long service life.

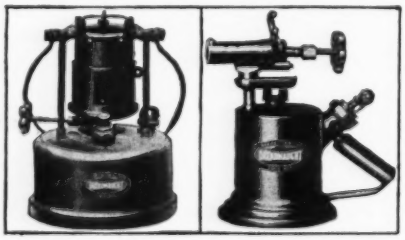
Try Fretz-Moon Pipe for your next installation, regardless of the severe bending required—you'll use it for all steel pipe work after that.

FRETZ-MOON TUBE CO., INC.
BUTLER, PENNA.

FRETZ-MOON
PIPE
BLACK AND GALVANIZED

A NEW LINE..
of **WALL** products
at a NEW LOW PRICE

Write for complete information. Ask for our plumbers' circular.



THOUGH lower in price than ever before, each is a newly developed WALL product designed to serve best your most particular needs, without the sacrifice of typical WALL quality features! It will pay you to get in touch with your jobber at once—or for jobbers to get in touch with us.

P. Wall Mfg. Supply Company · Pittsburgh, Pa.

SINCE WALL SUPERIOR PRODUCTS 1866

DREADNAUGHT
"Service with Safety"
BLOW TORCHES · · · FURNACES AND OILERS

Michigan Auxiliary Holds Annual Convention

The Ladies Auxiliary to the Michigan Master Plumbers Association held its annual meeting in conjunction with the master plumbers' state convention on April 5, 6 and 7, at Mt. Clemens, Mich. Mrs. Margaret Mesnard of Detroit was re-elected state president and Mrs. Minnie Andres of Ann Arbor will again act as treasurer. The other officers elected were Mrs. John Nawrot, Detroit, first vice president; Mrs. Celia Tegges, Bloomfield Hills, second vice president; Mrs. Ruby Williams, St. Clair Shores, third vice president; Mrs. Ark Moss, Warren, recording secretary, and Mrs. Kesler of Mt. Clemens, sergeant-at-arms.

On Tuesday the ladies joined the men at a luncheon and at the opening session of their convention. Later, the ladies were taken on a trip through the Detroit Cream-

Left to right: Mrs. Margaret Mesnard of Detroit, re-elected president of Michigan State Auxiliary; Mrs. Helen Wolf of Mt. Clemens, chairman of the auxiliary convention committee; and Mrs. Nellie Hughes of Detroit, past state president. Photos taken at the annual convention of the Michigan State Auxiliary, held recently at Mt. Clemens, Mich.

ery barns. A bridge party was held in the evening. At the business session on Wednesday, Mrs. Nellie Hughes, past state president, gave an interesting talk on the Needlework Guild.

It is the intention of all the members to co-operate and help the auxiliary to keep its membership at the present quota.

Mid-West Auxiliary to Hold Open Meeting

The Chicago Mid-West Auxiliary held its April meeting recently at the Graemere hotel. After a delicious luncheon, the newly elected president, Mrs. Henry Swade, conducted an interesting business meeting.

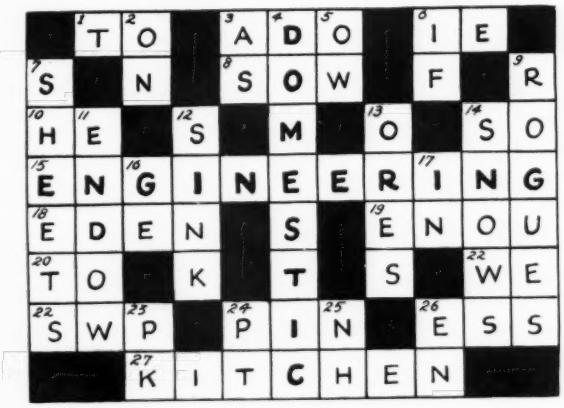
The afternoon was then spent in playing cards. The auxiliary wishes to extend an invitation to all the master plumbers' wives in the Mid-West Chicago territory to join the auxiliary. The next meeting will be held May 10th at the Graemere hotel. Those desiring to attend this meeting are requested to call Mrs. H. Swade, 2448 S. Hamlin avenue.

South Shore Auxiliary Holds Meeting

The Women's Auxiliary of the South Shore Master Plumbers Association of Wisconsin held its April meeting at the home of Mrs. Axel Sanderhoff, with Mrs. August Ernest as assisting hostess.

Following the business routine, bridge was played, with honors going to Mrs. Albert Brunk and Mrs. Otto Beetcher. Later, dinner was served by the hostesses. Those attending were Mesdames Otto Beetcher, Albert Brunk, Frank DeLonge, August Ernest, John Feiner, James Murphy, L. C. Pugh and Axel Sanderhoff, all of Racine; and V. J. Robb and William Wallace, both of South Milwaukee.

Pipe —— Lines
Connected by LYT



Above we show the solution to the crossword puzzle submitted by Ed Bosak of Crete, Neb., which was published in this column in the April 2 issue. Among those who have sent in correct solutions are F. J. Manning of La Crosse, Wis., H. D. Williams of New Haven, Conn., and Chestine Kendall of Jacksonville, Ill.

DOUBLE CHECK

Jack: "Say, Bill, if you had five bucks in your pocket, what would you do?"

Bill: "Check up to find out whose pants I had on."

THE OLD TIMER

Binge: "And how do you think your head will feel in the morning?"

Stew: "If all the heads that ache in the morning are laid end to end, mine will stand up and sneer at them."

THE INSERT

A DANDY SHOW

Mother: "What kind of a show did daddy take you to, Bobby?"

Bobby: "It was a dandy, Mamma. They had ladies dressed in stockings up to their necks."

Overheard in the paint stock room: Helper: You want some ochre, boss? Red ochre for painting?

Boss: No, tappy ochre for making puddings.

A BED TIME STORY

Midnight was striking as the householder crept downstairs. His eyes fell on a burglar tampering with the safe. "Jove, a real burglar!" he said, "wait a minute will you?"

"While you call the cops, eh? Not me" said the burglar.

"No" said the householder, "I want to call my wife. She's heard you every night for the last 15 years, and it will be a real pleasure to her to see you at last."

NUMEROUS

"Are there many bill collectors coming to your door?"

"More than I care to admit."

BARGAIN DAY

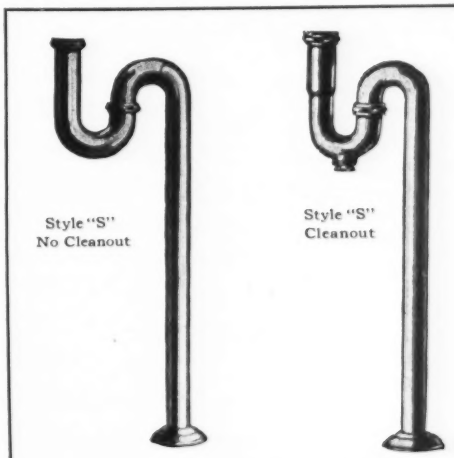
Customer (from the sticks): "I'd like a dollar dinner, please."

Ritzy Restaurant Waiter: "Yes, sir. On white or rye bread, sir?"

A prisoner shot his way out of the jail at South Bend, Ind. He must have been broke.

L Y T

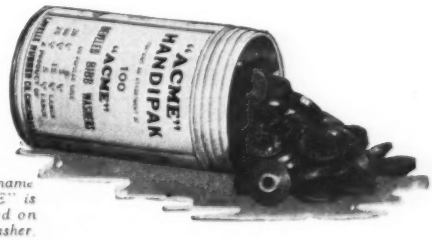
KEENEY PRODUCTS



THESE traps from the Keeney Line of tubular plumbing goods are built to the same high standard as all Keeney Products and are proving a source of much profit for contractors who handle the Keeney Line. Write for the Keeney story explaining the entire line and the profit making possibilities. Our catalog, recently issued has information of interest to you.

KEENEY MFG. CO., Newington, Conn.

The Acme Handipak presents a Bibb Washer for all requirements



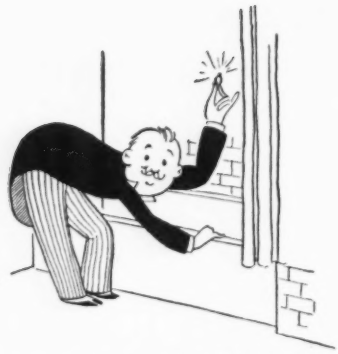
The name "ACME" is stamped on every washer.

The "ACME" HANDIPAK contains an assortment of 100 washers in seven popular sizes. "ACME" Beveled Bibb Washers are made of black rubber compound highly resistant to hot and cold water; will not swell, cut or groove; eliminate rapping and chattering; allow a full waterway and seat perfectly.

Write for full information

LAVELLE RUBBER COMPANY

320 W. Illinois St. Chicago, Illinois



$3,000 RING *found in bath tub*

THIS departing guest was frantic: A $3,000 diamond ring lost—and he couldn't wait to look for it. With agony in his voice, he called the United Manager. Three hours go by. The guest has gone, but the manager is still on the job.

A wild idea—the Manager pokes a flash-light down the bath tub drain—there's a faint sparkle—plumbers arrive, the drain gives up a $3,000 ring.

Another true story proving that United Managers do the impossible in finding lost articles. This extra service costs the hotel money? Yes, but what of it. Extra service is taken for granted at United Hotels, just like larger rooms per dollar—and handy garage accommodations.

Extra service at these 21
UNITED HOTELS

NEW YORK CITY'S *only United*.....The Roosevelt
PHILADELPHIA, PA.....The Benjamin Franklin
SEATTLE, WASH.....The Olympic
WORCESTER, MASS.....The Bancroft
NEWARK, N. J.....The Robert Treat
PATERSON, N. J.....The Alexander Hamilton
TRENTON, N. J.....The Stacy-Trent
HARRISBURG, PA.....The Penn-Harris
ALBANY, N. Y.....The Ten Eyck
SYRACUSE, N. Y.....The Onondaga
ROCHESTER, N. Y.....The Seneca
NIAGARA FALLS, N. Y.....The Niagara
ERIE, PA.....The Lawrence
AKRON, OHIO.....The Portage
FLINT, MICH.....The Durant
KANSAS CITY, MO.....The President
TUCSON, ARIZ.....El Conquistador
SHREVEPORT, LA.....The Washington-Youree
TORONTO, ONT.....The King Edward
NIAGARA FALLS, ONT.....The Clifton
WINDSOR, ONT.....The Prince Edward

UNITED HOTELS

Little Sentences That Sell

Write one of these BLACKBOARD EPIGRAMS on your window or bulletin board each day. Many master plumbers and heating contractors find them real business getters.

Wit is the salt of conversation, not the food.

* * *

It doesn't take much of a hunter to bag his trousers.

* * *

The mule that gets in the first kick usually wins the battle.

* * *

Milestones are not sociable; one never finds two of them together.

* * *

A fish in the hand is worth two in the story.

* * *

The flow of water in a river is a matter of course.

* * *

People who live in glass houses should have eye-proof curtains.

* * *

Truth has rough flavors if we bite through.

* * *

Helping a man to make good is also making good for the man who helps him.

* * *

Oil magnates live on the fat of the land.

* * *

Be natural, borrowed garments seldom fit well.

* * *

The slowest of us cannot but admit that the world moves.

Trouble Job Solved

(Continued from Page 23)

higher degree without the danger of making steam. The tank itself is simply a miniature pneumatic tank such as is used with pneumatic water systems and the spring effect is obtained from the air which is compressed within the tank by the entrance of the water into the bottom portion. The expansion of the water in the system as it becomes heated forces more water into the tank and increases the compression of the air and likewise the pressure. The ideal tank is one of such size that the air contained is of such volume that, when the additional water caused by the heating expansion enters the tank, the additional compression of the air will not produce such an increase in pressure as to operate the relief valve and allow a loss of water.

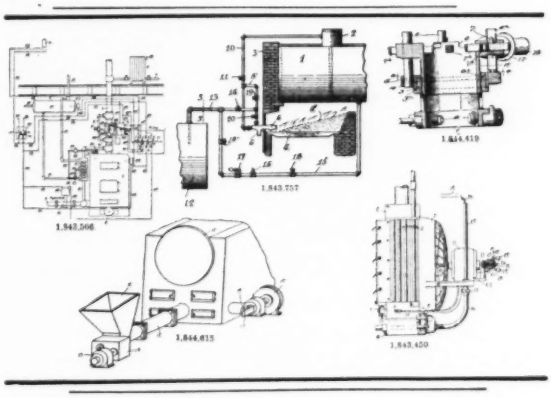
It is rather a complicated matter to calculate exactly what tank capacity is required to meet the conditions of each installation and each job has varying factors to consider. For example, the amount of water, which will enter the tank before the system is heated and assuming air at atmospheric pressure in the tank at the start, is governed by the gravity head on the tank plus any additional pressure which may be put on the system before the fire is started. There is a minimum size of tank that cannot be decreased without causing the relief valve to operate. A tank larger than required has no objectionable feature beyond the initial cost.

NEW IDEAS FROM PATENT OFFICE

Heating Department

1,843,566. Heating System. Harry E. Lake, New York, N. Y., assignor to Preferred Utilities Manufactories Corporation, New York, N. Y., a corporation of Delaware.

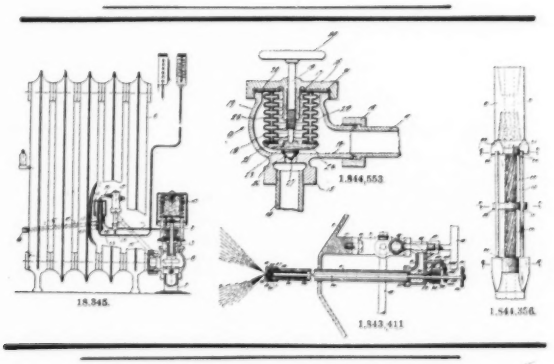
1,843,757. Oil Burning System. Joseph Roch Brien, Montreal, Quebec, Canada, assignor of one-fourth to Henri Ste Marie and Emery Ste Marie, Montreal, Canada.



1,844,419. Diestock. Bradford T. Borden, Lakewood, Ohio, assignor, by direct mesne assignments, to The Borden Company, Warren, Ohio, a corporation of Ohio.

1,844,615. Stoker Control. Walter F. Trotter, Cincinnati, Ohio, assignor to Holcomb & Hoke Manufacturing Company, Indianapolis, Ind., a corporation.

1,843,450. Heating Apparatus. Hubert R. Humphrey and George A. Humphrey, Kalamazoo, Mich., assignors to General Gas Light Company, Kalamazoo, Mich.



18,345. Temperature Controlling Apparatus. Emil T. Johnsson, Chicago, Ill.

1,844,553. Duplex Thermostatic Trap for Vapor Heating Systems. George E. Barlow, Wilmington, Del.

1,843,411. Liquid-Fuel Burner. Ernest L. Woolley, Providence, R. I.

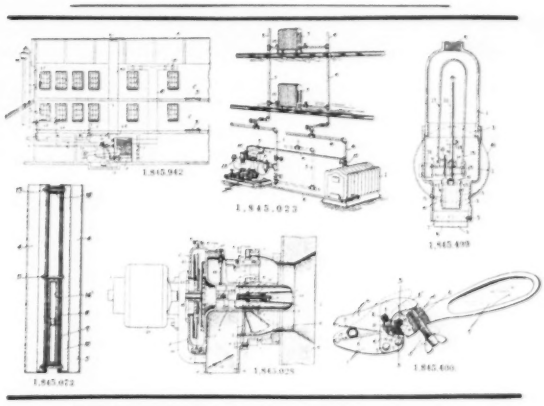
1,844,356. Reamer. John Grant, Los Angeles, Calif.

1,845,942. Heating, Drying, and Ventilating System. John C. Stillman, Appleton, Wis.

1,845,023. Vacuum Steam Heating System. Irving C. Jennings, South Norwalk, Conn.

1,845,499. Thermostatic Temperature Regulator. Richard F. Henneuse, Bucyrus, Ohio.

1,845,073. Radiator. Irving T. Bennett, Brooklyn, N. Y., assignor, by mesne assignments, to American Ra-



diator & Standard Sanitary Corporation, a corporation of Delaware.

1,845,028. Oil Burner. James N. Macrae and Ralph S. Thoresen, Stamford, Conn., assignors to Petroleum Heat and Power Company, New York, N. Y., a corporation of Delaware.

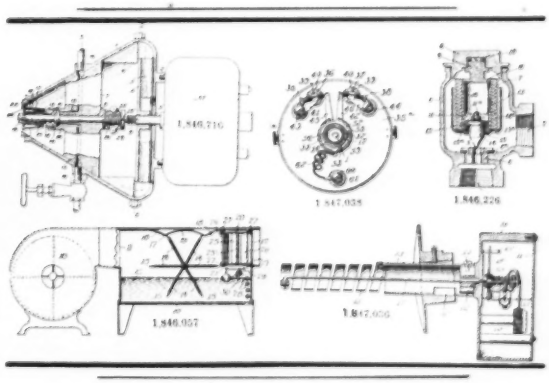
1,845,400. Wrench. Charles D. Cummings, Tully, N. Y., assignor to Allen, Fuller & Cummings Company, Inc., Portsmouth, N. H., a corporation of Maine.

1,846,716. Oil Burner. Elmer E. Goehler and Paul Amort, Portland, Ore.

1,847,038. Stack Thermostat. Paul F. Shivers, Wabash, Ind., assignor, by mesne assignments, to Minneapolis-Honeywell Regulator Company, Minneapolis, Minn., a Corporation of Delaware.

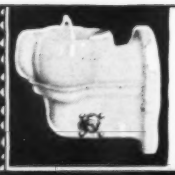
1,846,226. Trap. Herbert A. Smith, Bethlehem, Pa., assignor to Sarco Company, Inc., New York.

1,846,057. Air Washer and Humidifier. Robert A. Ilg,



Chicago, Ill., assignor to Ilg Electric Ventilating Company, Chicago, Ill., a Corporation of Louisiana.

1,847,036. Connecting Means for Electrical Switches. Louis A. M. Phelan, Elkhart, Ind., assignor, by mesne assignments, to Minneapolis-Honeywell Regulator Company, Minneapolis, Minn., a Corporation of Delaware.



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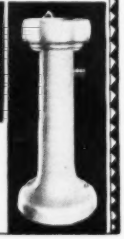

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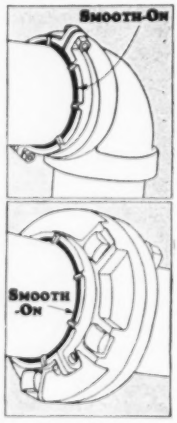

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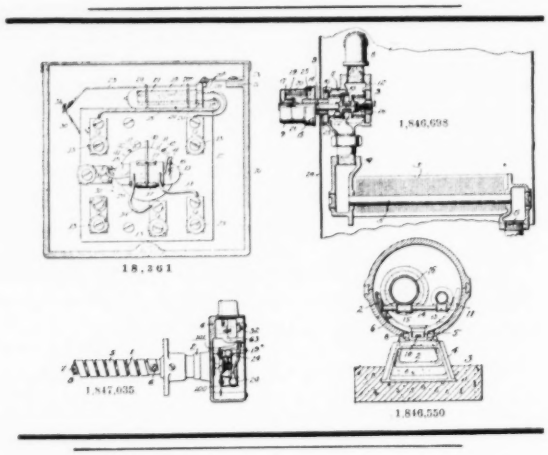
18,361. Thermostatic Switch. Louis A. M. Phelan, Chicago, Ill., assignor, by mesne assignments, to Minneapolis-Honeywell Regulator Company, Minneapolis, Minn., a Corporation of Delaware.

1,846,698. Automatic Heating Unit. Reuben N. Trane, La Crosse, Wis.



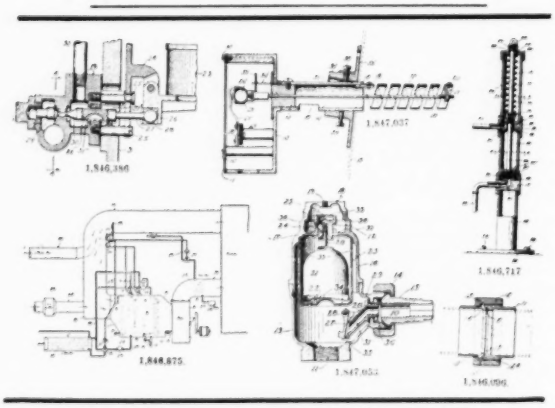
1,847,035. Stack Thermostat. Paul F. Shivers, Wabash, Ind., assignor, by mesne assignments, to Minneapolis-Honeywell Regulator Company, Minneapolis, Minn., a Corporation of Delaware.

1,846,550. Pipe Support for Use With Conduits. Christian Gottwald, Cleveland, Ohio, assignor to The Ric-Wil Company, Cleveland, Ohio.

1,846,386. Oil Burner. Milton A. Fesler, Los Angeles, Calif., assignor to Petroleum Heat & Power Company, New York, N. Y., a Corporation of Delaware.

1,847,037. Electric Switch. Louis A. M. Phelan, Beloit, Wis., assignor, by mesne assignments, to Minneapolis-Honeywell Regulator Company, Minneapolis, Minn., a Corporation of Delaware.

1,846,717. Damper Adjusting Attachment for Oil Burners. Benjamin R. Grace, Troy, N. Y., assignor of one-third to Nora A. Grace and one-third to Maurice J. Cooney, Troy, N. Y.



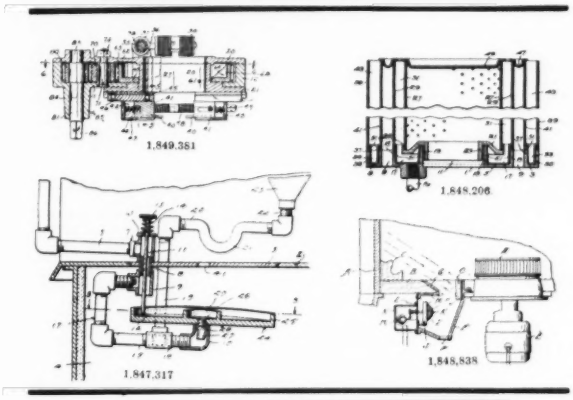
1,846,875. Air Conditioning. Alfred D. Karr, Newark, N. J., and Karl D. Perkins, New York, N. Y., assignors to Audiffren Refrigerating Machine Company, New York, N. Y., a Corporation of New Jersey.

1,847,053. Venting Appliance for Heating Systems. Alfred L. Browne, South Orange, N. J.

1,846,096. Pipe Fitting. Harvey Feldmeier, Little Falls, N. Y., assignor to Cherry-Burrell Corporation, Wilmington, Del., a Corporation of Delaware.

1,849,381. Pipe Cutter. Robert B. Pealer, Warren, Ohio, assignor to The Borden Company, Warren, Ohio, a Corporation of Ohio.

1,848,206. Liquid Fuel Burner. Rallston M. Sherman, Glastonbury, Conn., assignor to The Silent Glow Oil Burner Corporation, Hartford, Conn., a corporation of Connecticut.



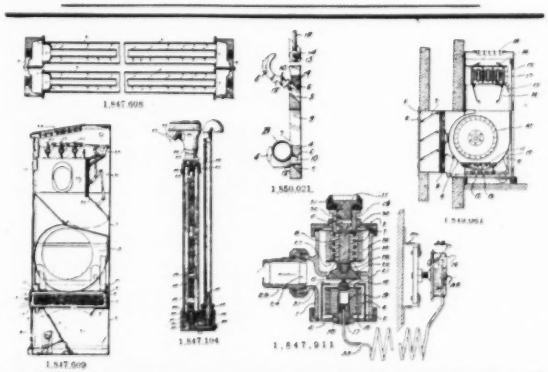
1,847,317. Oil Burner. Ira E. Van Auken, Twin Falls, Idaho.

1,848,838. Burner Control Mechanism. Milton A. Powers, Detroit, Mich., assignor to The Timken-Detroit Company, Detroit, Mich., a corporation of Michigan.

1,847,608. Radiator. Lewis D. Harnett, Columbus, Ohio, assignor, by mesne assignments, to Buckeye Blower Company, a corporation of Delaware.

1,850,021. Pipe Hanger. Constantine Marrone and Joseph Mulkern, Pittsburgh, Pa.

1,849,061. Air Conditioning Equipment. Samuel M. Anderson, Sharon, Mass., assignor to B. F. Sturtevant Company, Boston, Mass., a company.



1,847,609. Removable Filter Unit Heater. Lewis D. Harnett, Columbus, Ohio, assignor, by mesne assignments, to Buckeye Blower Company, a corporation of Delaware.

1,847,104. Pressure Gauge. Albert F. Spitzglass, Chicago, Ill., assignor to Republic Flow Meters Co., Chicago, Ill., a corporation of Illinois.

1,847,911. Thermostatically Controlled Valve. Reuben N. Trane, La Crosse, Wis.

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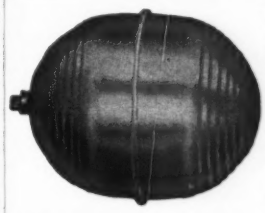

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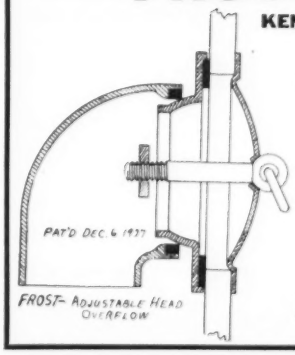

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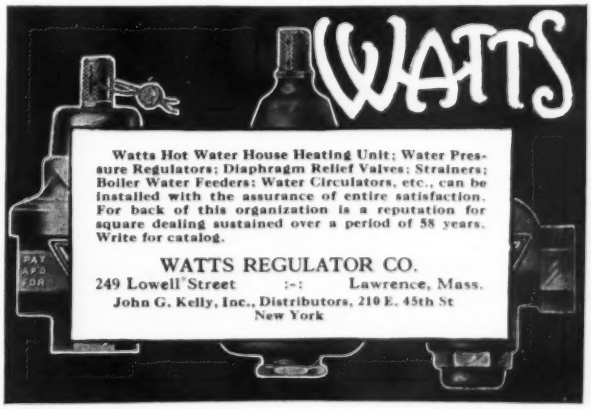

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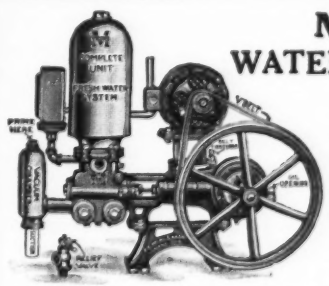

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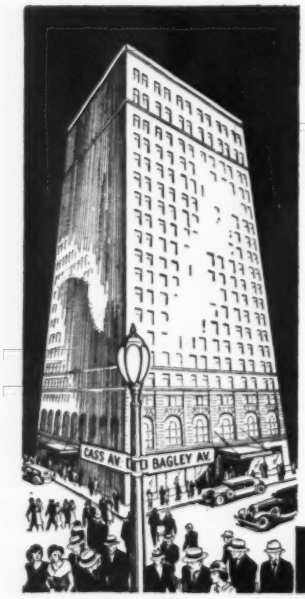

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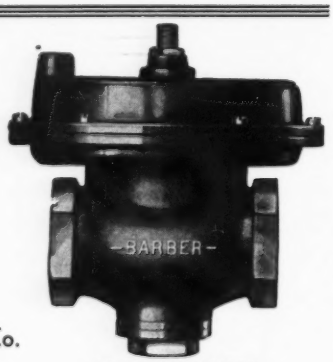

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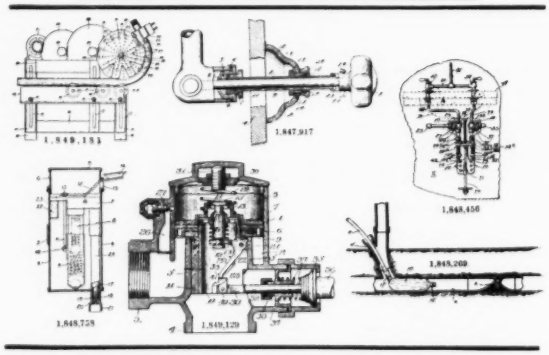
1,848,456. Hot and Cold Water Wash Sink and Lavatory Faucet Fixture. Leslie W. Beebe, Oak Park, Ill.



1,848,758. Liquid Soap Container. Aubrey Edmund Westwood, Wootton Wawen, England.

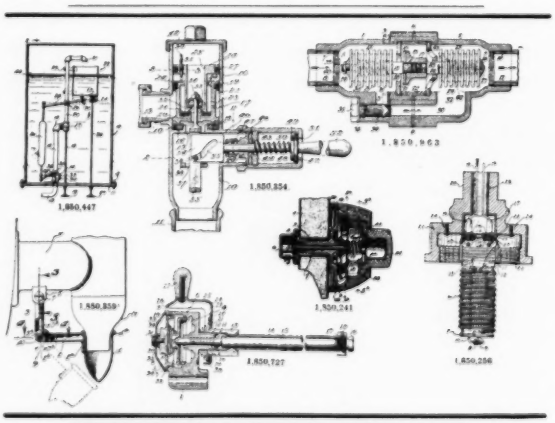
1,849,129. Flush Valve. Warren C. Wright, Chicago, Ill.

1,848,269. Sewer Flusher. George Petersen, Milwaukee, Wis., assignor to Rosa E. Petersen, Milwaukee, Wis.

1,850,447. Flush Tank. Alton E. Cobb, Los Angeles, Calif.

1,850,354. Flushing Valve. Jesse C. Owens, Los Angeles, Calif., assignor to Owens Manufacturing Co., Ltd., a Corporation of California.

1,850,963. Thermostatically Operative Valve. Aloysius T. Sponar, Conshohocken, Pa., assignor to John Wood Manufacturing Company, Conshohocken, Pa., a Corporation of Pennsylvania.



1,850,359. Sanitary Faucet Protector. Charles M. Simmons, San Diego, Calif.

1,850,727. Temperature Responsive Device. John A. Robertshaw, Youngwood, Pa., assignor to Robertshaw Thermostat Company, Youngwood, Pa., a Corporation of Pennsylvania.

1,850,241. Thermostat. Warren Noble, Detroit, Mich.

1,850,256. Electric Hydrant Thawer. Leonard B. Biglow, Smooth Rock Falls, Ontario, Canada.

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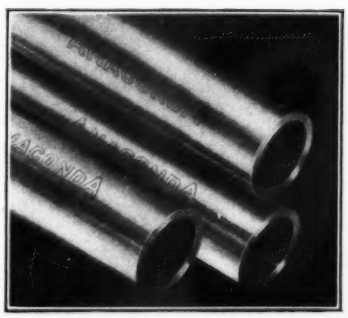

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That is why 5000 Plumbing and Heating contractors and more than 1400 wholesalers use the Big Orange Book as their buying guide. That is why 500 engineers who design plumbing and heating installations and specify materials, consulting engineers, engineers on the staffs of architects, etc. constantly refer to the Big Orange Book.

Let us explain our Catalog Service, which relieves you entirely of the work of preparing your catalog . . . and we will also explain how your catalog in the Plumbing and Heating Catalog will reach and retain preferred position on the desks of the greatest buying power in the industry.

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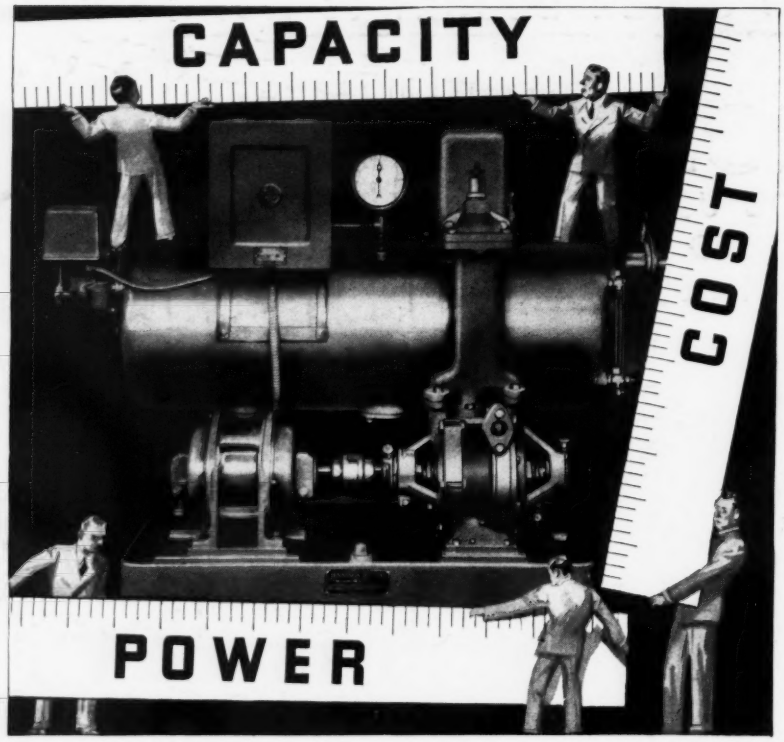

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proves there's more for your money in a Jennings Pump . . .

Capacity . . . power consumption . . . cost . . . no matter which yardstick you use, the answer is the same. There's greater value in Jennings Vacuum Heating Pumps.

No other heating pump can approach the capacity of the Jennings Pump. For each dollar invested in a Jennings you purchase the removal, in a given time, of more air and more condensation from the heating system with the least power.

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Pump ratings in sq. ft. of equivalent direct radiation may be misleading. But, not if you insist on a definite air and water capacity for the minimum power. On this basis, a Jennings Pump to handle any given amount of radiation can be obtained at a lower first cost.

BOOKLET GIVES BASIS FOR SELECTING HEATING PUMPS

There is just one way to be sure of getting the right pump for every job and, incidentally, of getting the greatest heating pump value. A new booklet, "Selecting a Vacuum Heating Pump", deals with this problem in detail. It will be sent, on request, to anyone interested in obtaining more for his heating pump dollar.

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